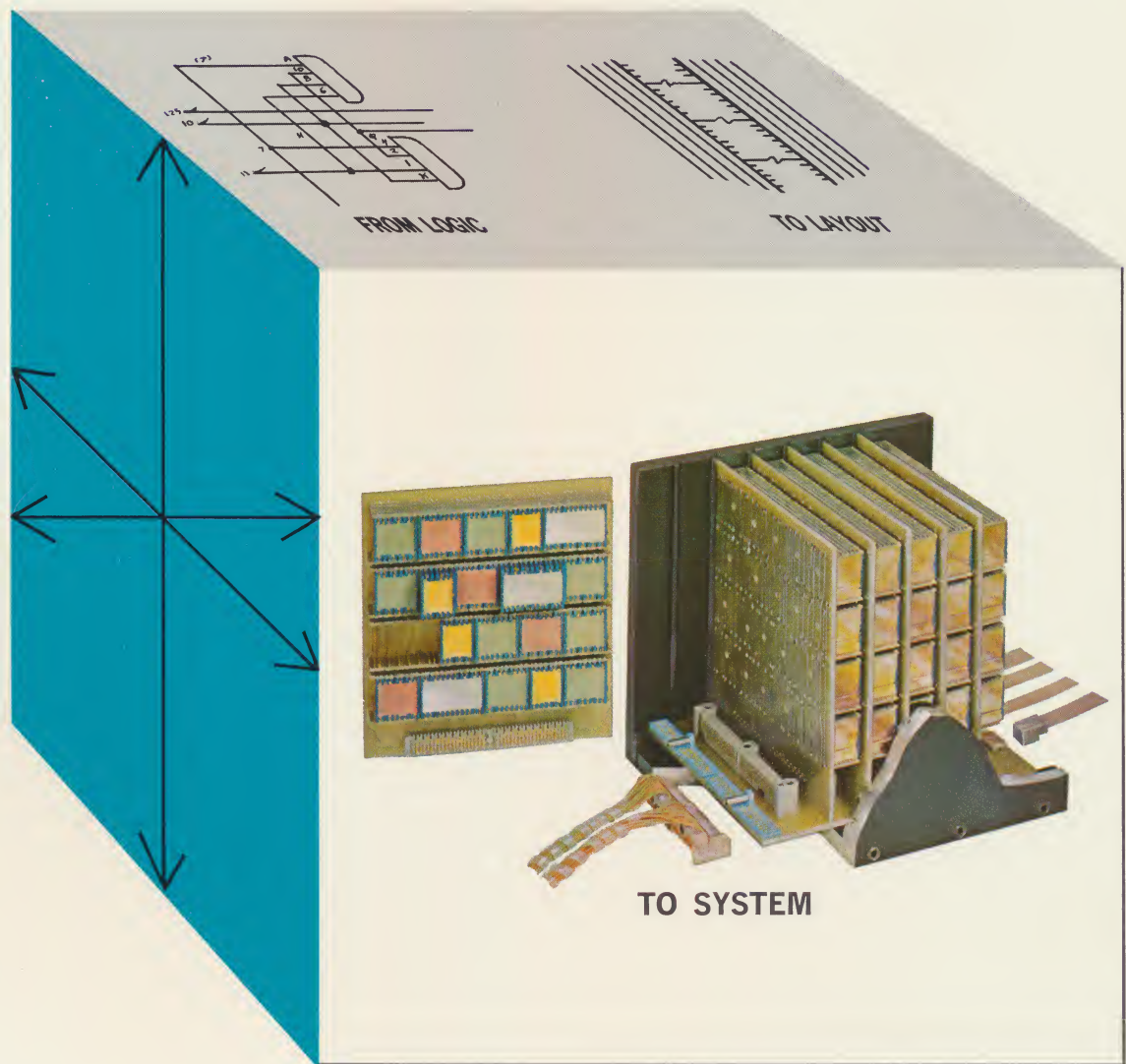


AMP-MECA

INTERCONNECTION SYSTEM

Handbook of procedures and data



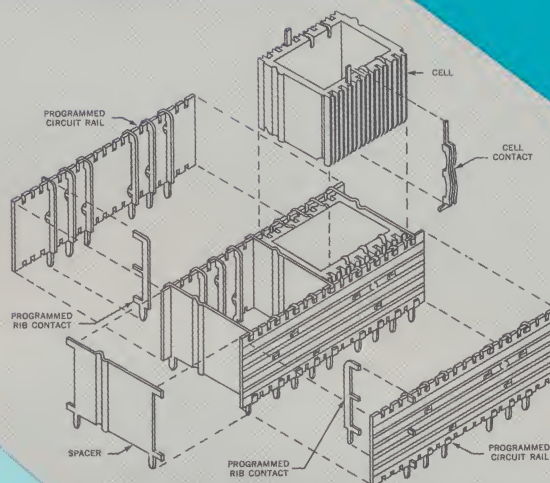
AMP INCORPORATED / HARRISBURG, PA.

In this book, you will find all the necessary information required for the application of the AMP-MECA Interconnection System. Included is a complete set of illustrated instructions and procedures for converting a schematic diagram into the system's physical counterparts and also a complete listing of parts for your convenience in ordering. If you have any questions concerning special applications of the AMP-MECA Interconnection System, write to: AMP-MECA Section, AMP INCORPORATED, Harrisburg, Pennsylvania.

The AMP-MECA* Interconnection System is a three-dimensional system comprised of interconnecting pluggable circuit modules. Any size or method of module fabrication can be accommodated by varying the system in even increments of height, width and length. The system is constructed using conventional materials and manufacturing processes.

The AMP-MECA System offers a totally new approach in the area of layout of interconnections between circuits. The use of a specially designed layout chart makes possible conversion from the schematic to the physical in considerably less time and without the skilled drawing board personnel needed by conventional procedures, thereby effecting substantial reductions in costs at the very onset.

GLOSSARY OF AMP-MECA PARTS AND THEIR FUNCTION



CELLS—Cells are modular units used to contain functional circuits. Length, width and height can be varied in increments of .100" to accommodate variations of circuit module sizes. Cell walls are slotted on .100" increments to accommodate contacts which provide input-output connections to the circuits.

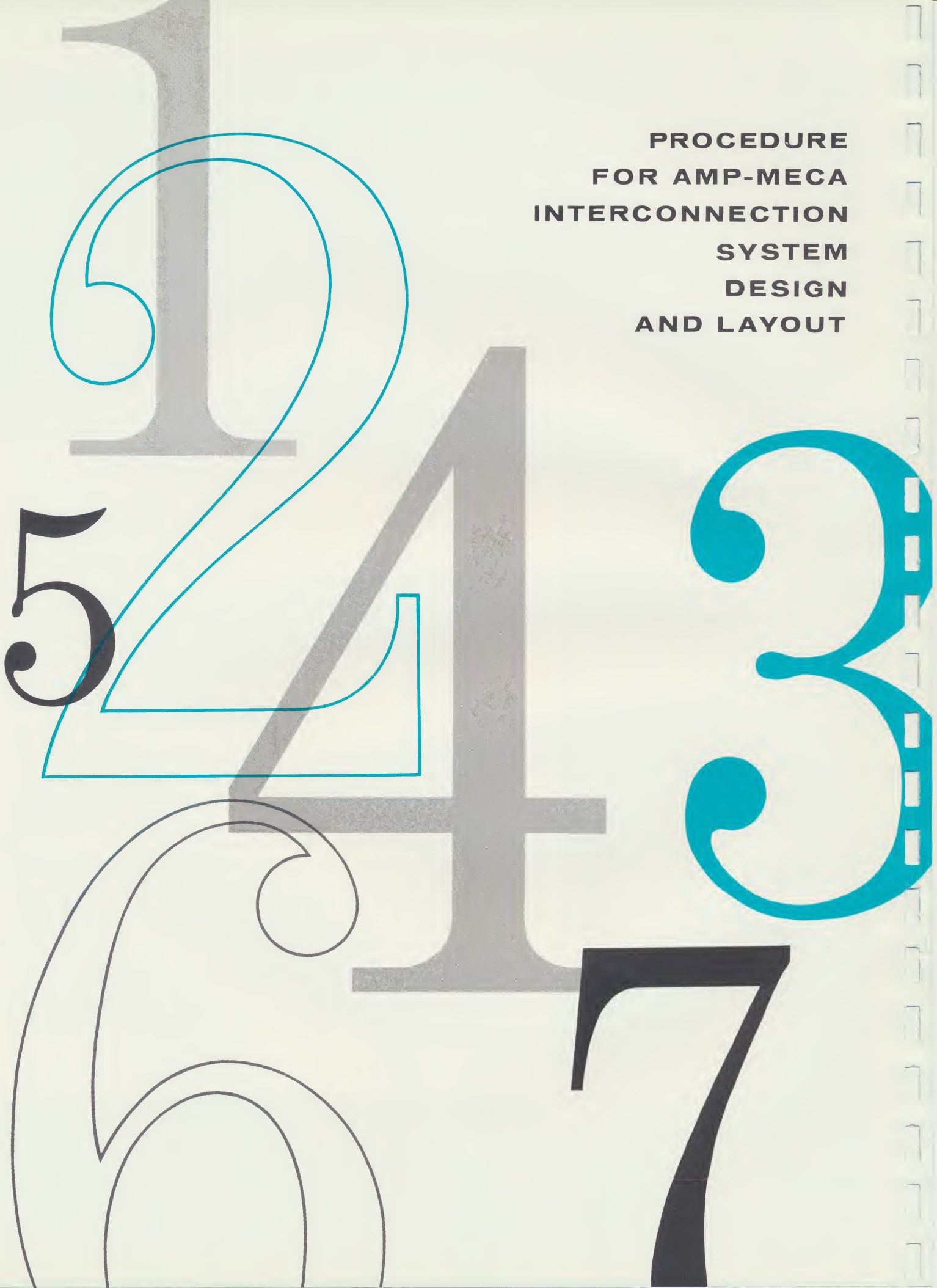
CELL CONTACTS—Cell contacts are spring members which are retained in slots of the cell connector and soldered or welded to the input-output connections of the circuit module. The cell contacts mate with the rib contacts when the cell is plugged into the receptacle formed by the circuit rails and spacers. The mated contacts, somewhat similar in design to the knife-blade switch, offer maximum reliability in that they consist of two independent spring systems with a total redundancy of four independent circuit paths.

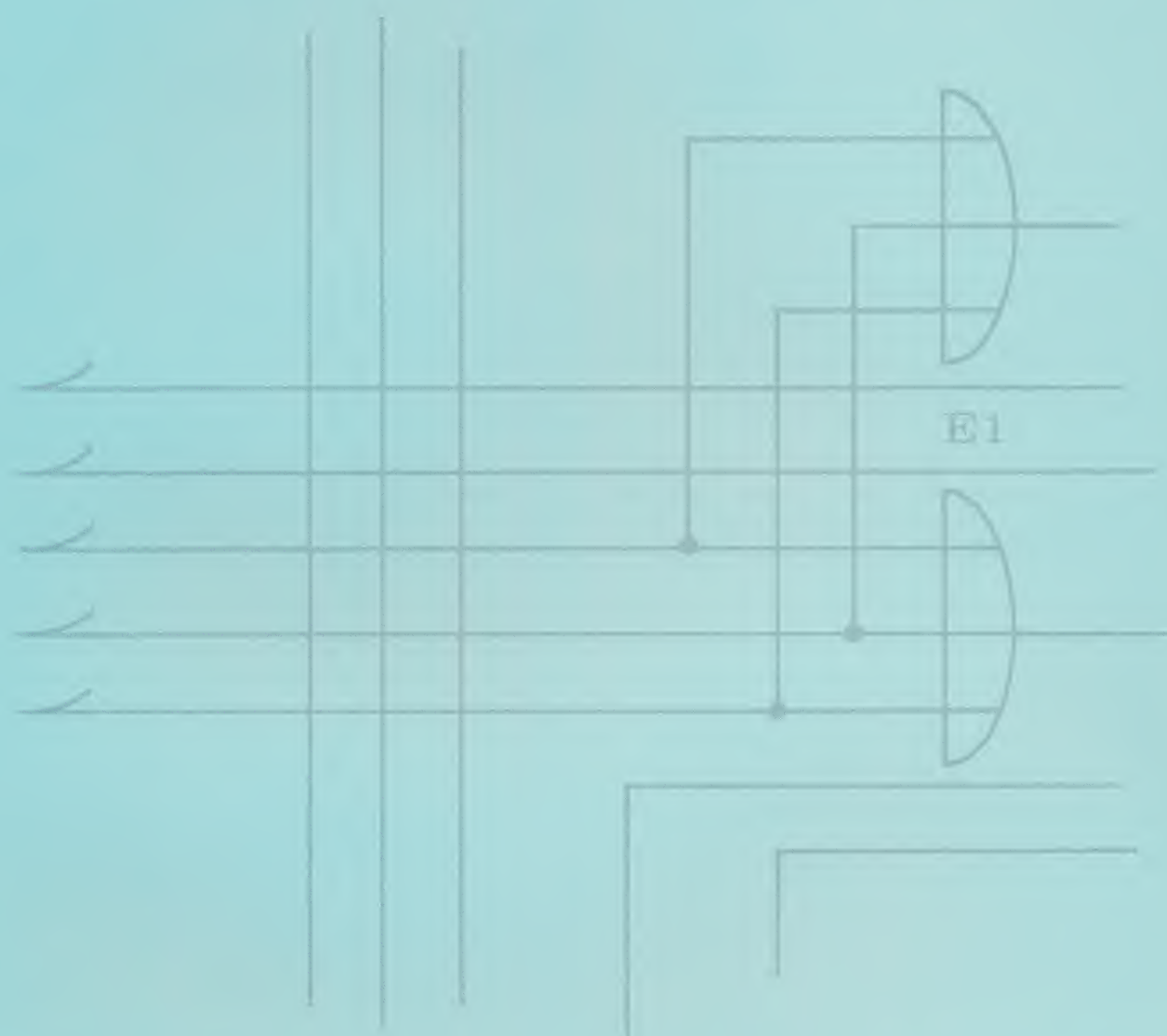
RIB CONTACTS—Rib contacts are metal stampings used to make connections between the baseboard, the module cell contacts and the conductor circuit rails. Top and bottom tabs of the contacts are used to secure the rib within slots at the top and bottom edges of the circuit rail. Rib contact tines are located on the same spacing as the circuit rail conductor paths and are programmed, in assembly, to suit interconnection requirements.

CIRCUIT RAILS—Circuit rails are held rigid by spacers and mounted on a printed circuit board, in opposed fashion at 90°, to form two sides of a receptacle for the plug-in modular cells. Rail lengths are determined by the number and length of cells to be connected. Cell height or requirements for additional conductor paths for interconnections prescribe the rail height.

SPACERS—Spacers are metal stampings used between cells and secured to circuit rails by bent over tabs; together with the circuit rails they form receptacles for the individual cell modules. The spacers are equal in height to the rails and also act as rigidizing cross-members.

**PROCEDURE
FOR AMP-MECA
INTERCONNECTION
SYSTEM
DESIGN
AND LAYOUT**





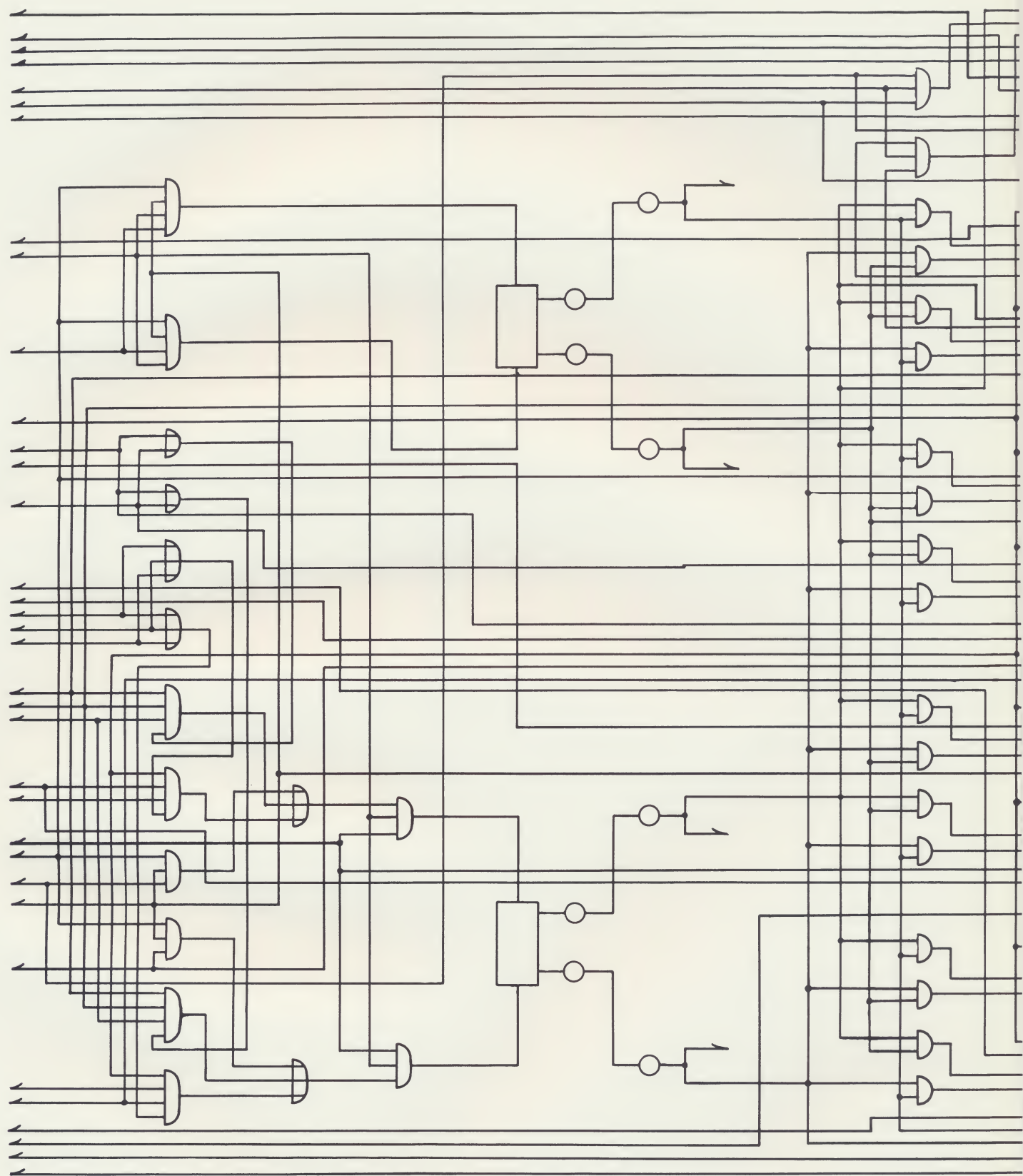
LOGIC FLOW DIAGRAM

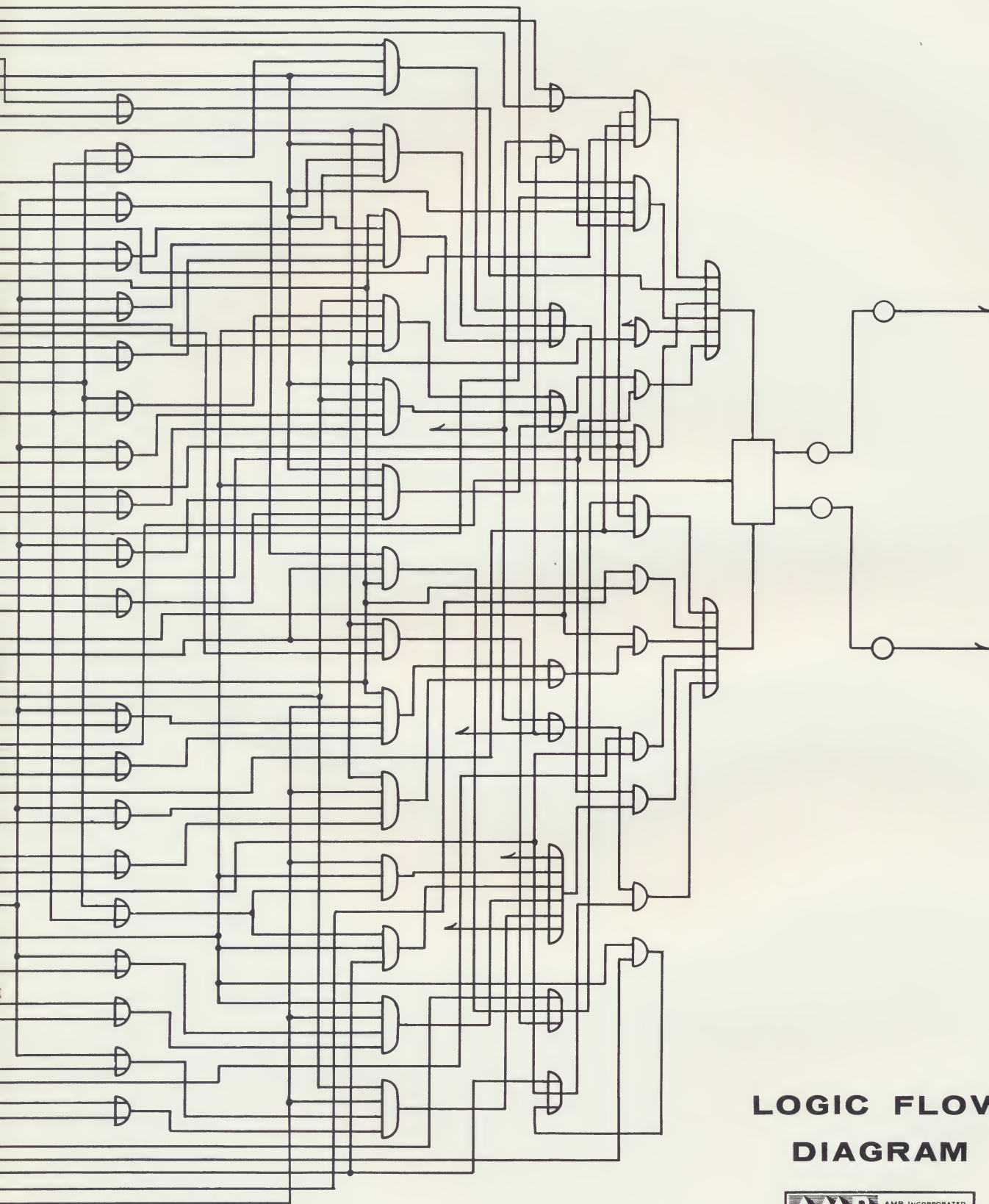
Fig. 1

This symbolic logic flow diagram has been chosen to illustrate the conversion of pure schematic electrical diagrams into working systems and is a typical representation of the interconnection problems facing today's computer industry. Power supply circuits (D.C. busses) necessary to activate the "ands", "ors", "flip-flops", etc. have been omitted for the sake of clarity.

In this case, double-sided printed circuit plug-in modules, in common use today, could not be used without further partitioning this diagram into smaller assemblies.

The following series of figures and commentary will illustrate the rapidity and ease with which the AMP-MECA Interconnection System can be used to solve this difficult problem.

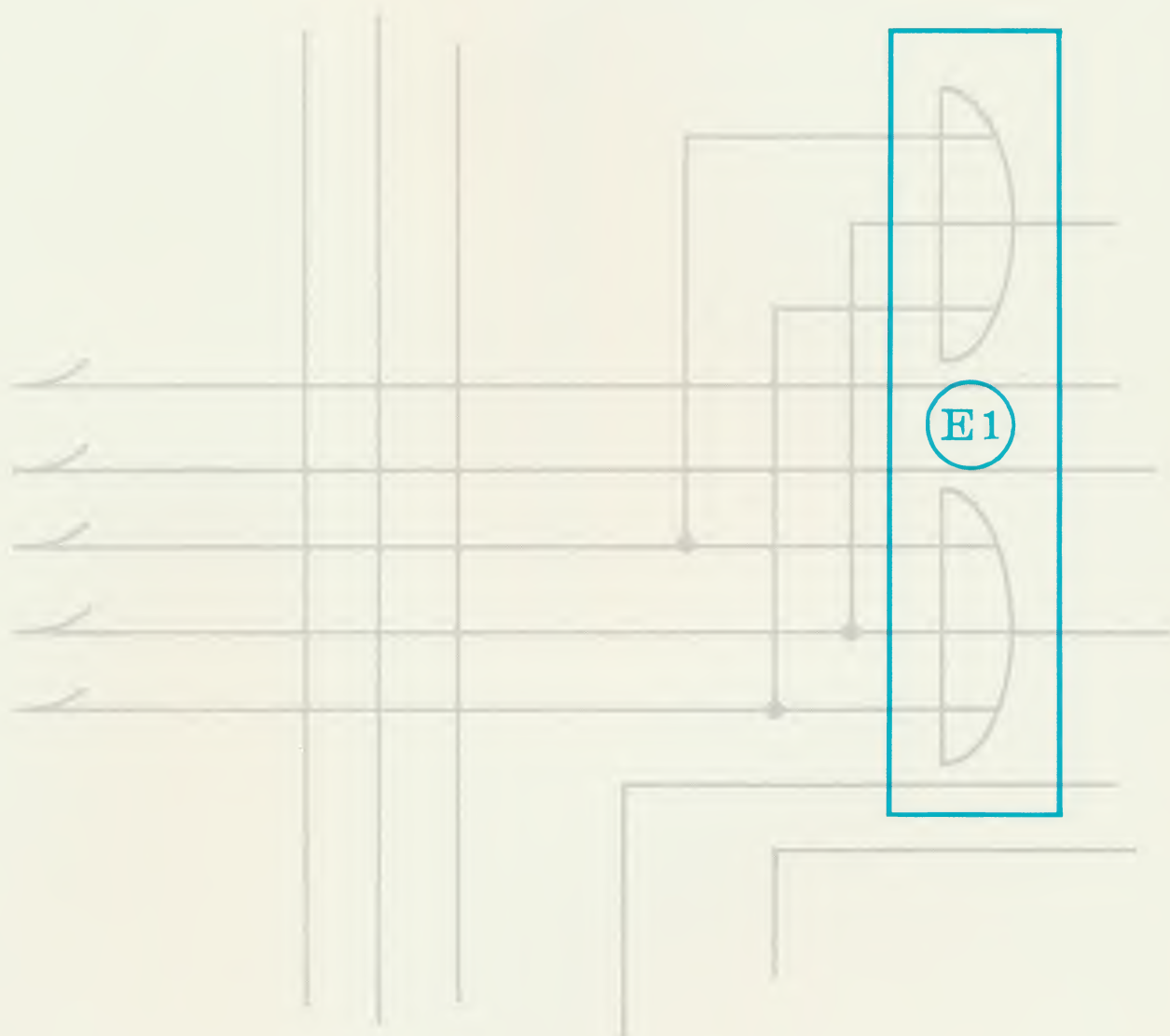




LOGIC FLOW DIAGRAM



Fig. 1



MODULARIZATION AND IDENTIFICATION

You may be familiar with some, possibly all, of the modularization problems described in this section. These specific problems have been included to give you a graphic demonstration of the orderly solutions which are a fundamental part of the AMP-MECA Interconnection System.

Symbolic functions, as shown by light colored blocks, are grouped to form modular units which will be contained within the cells. During this process it is important that the following considerations be kept in mind.

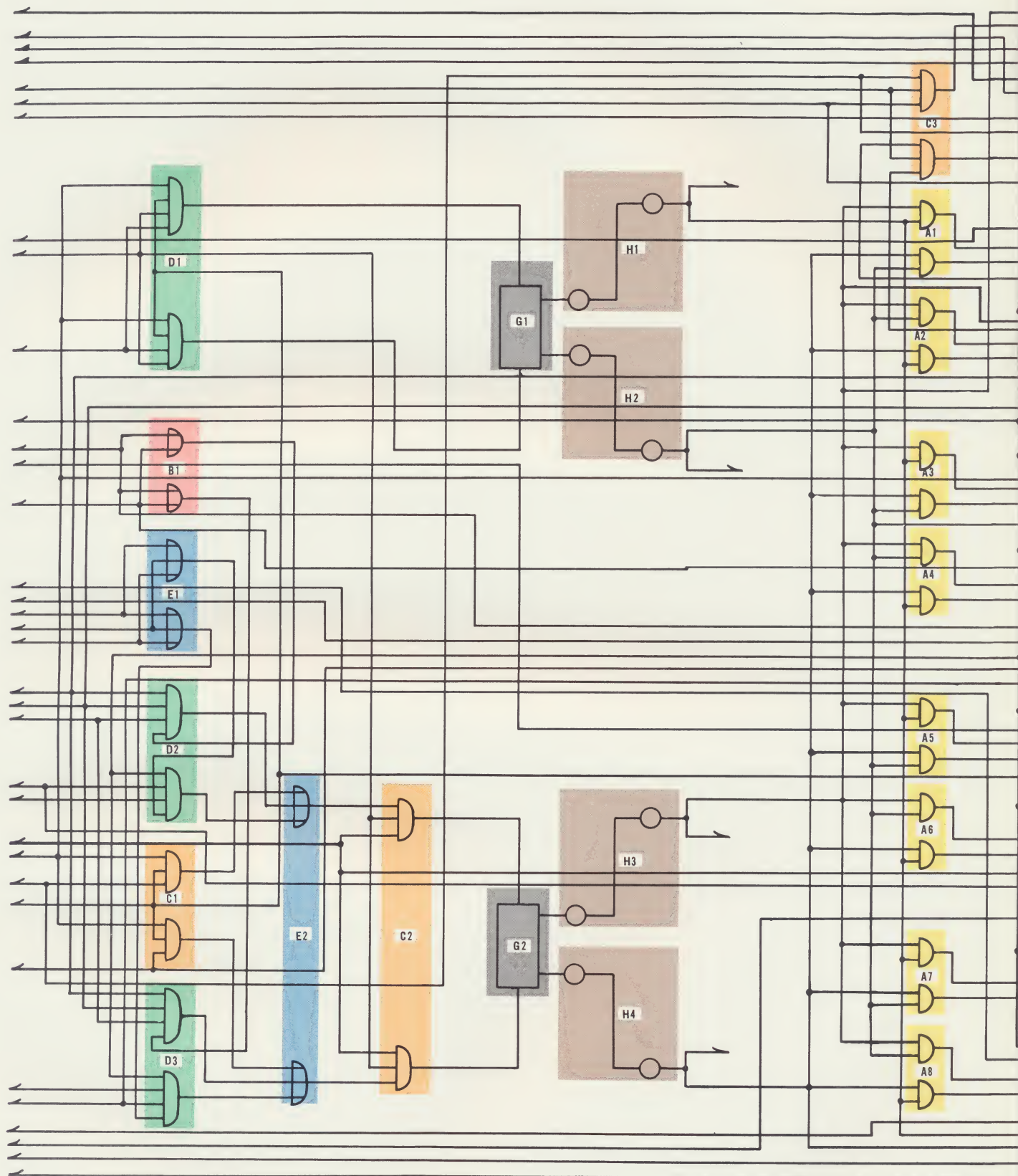
1. Redundancy of module types, different module types should be kept to a minimum.
2. Heat dissipation of each module type.
3. Volumetric efficiency of module types.
4. Size compatibility of module types keeping heights and width constant and length as an infinite variable.
5. Input-output contact requirements when establishing module lengths. Note that a pair of contact slots are obtained for each .100" increase in module length.
6. The economics of manufacture; consideration of the small module as an expendable unit.

Each module of a specific function is assigned a letter designation as indicated below.

Fig. 2

CELLS	FUNCTIONS	TYPE
A	2	2-input "and" gates
B	2	2-input "or" gates
C	2	3-input "and" gates
D	2	4-input "and" gates
E	2	3-input "or" gates
F	1	6-input "or" gates
G	1	"flip-flop"
H	1	Double inverter

In addition to the letter, a number is also assigned to indicate module location for interconnection purposes.



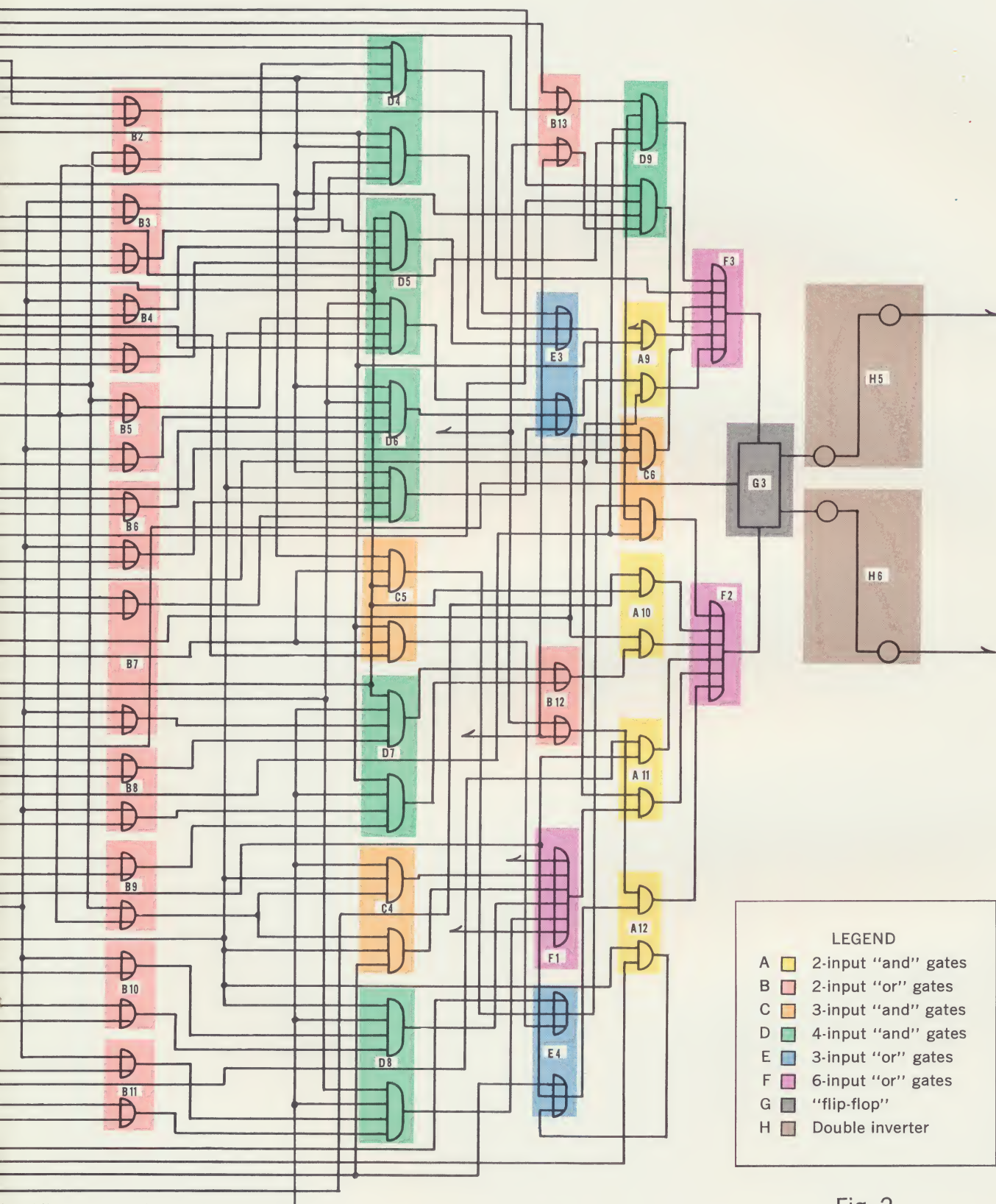
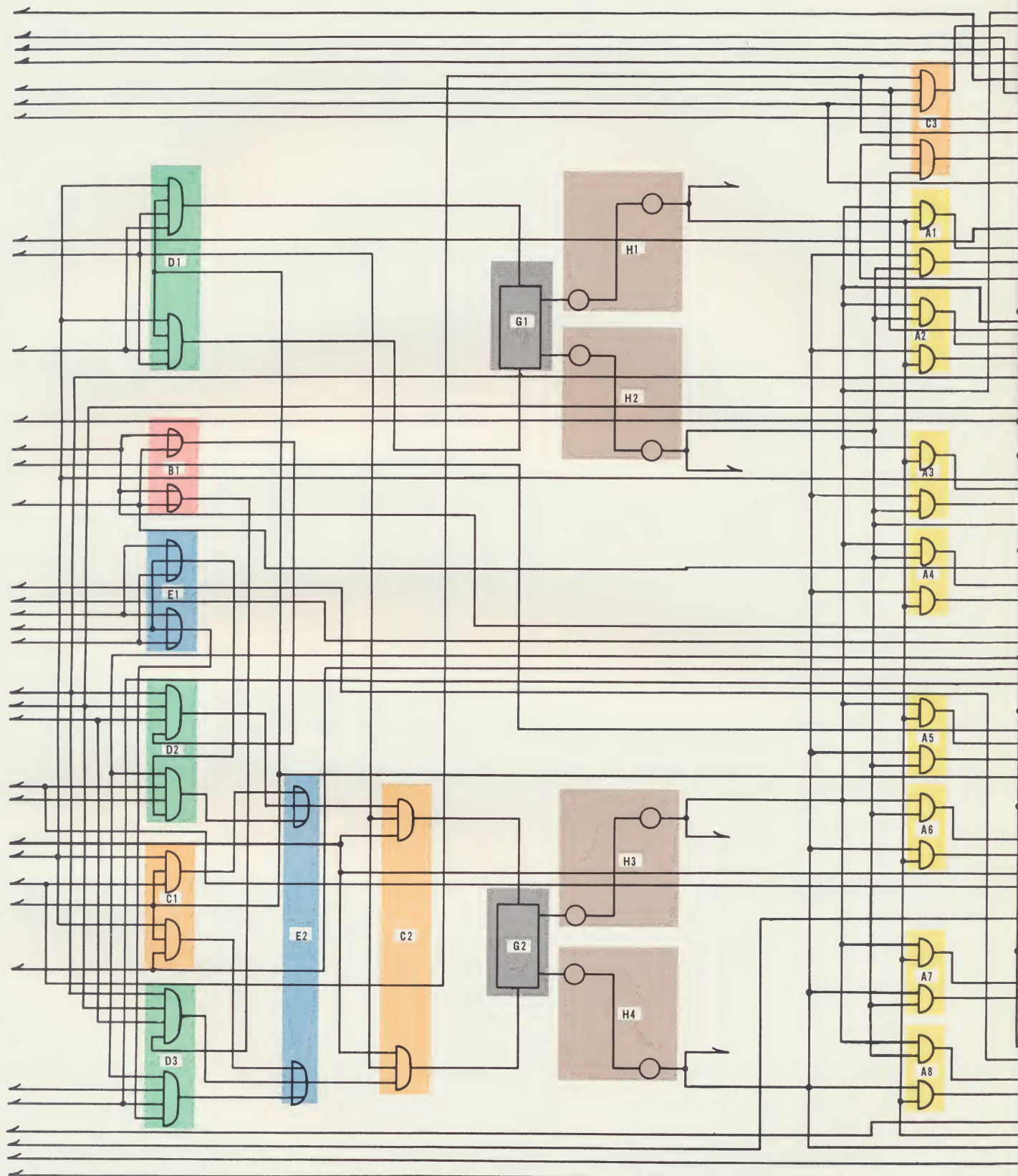
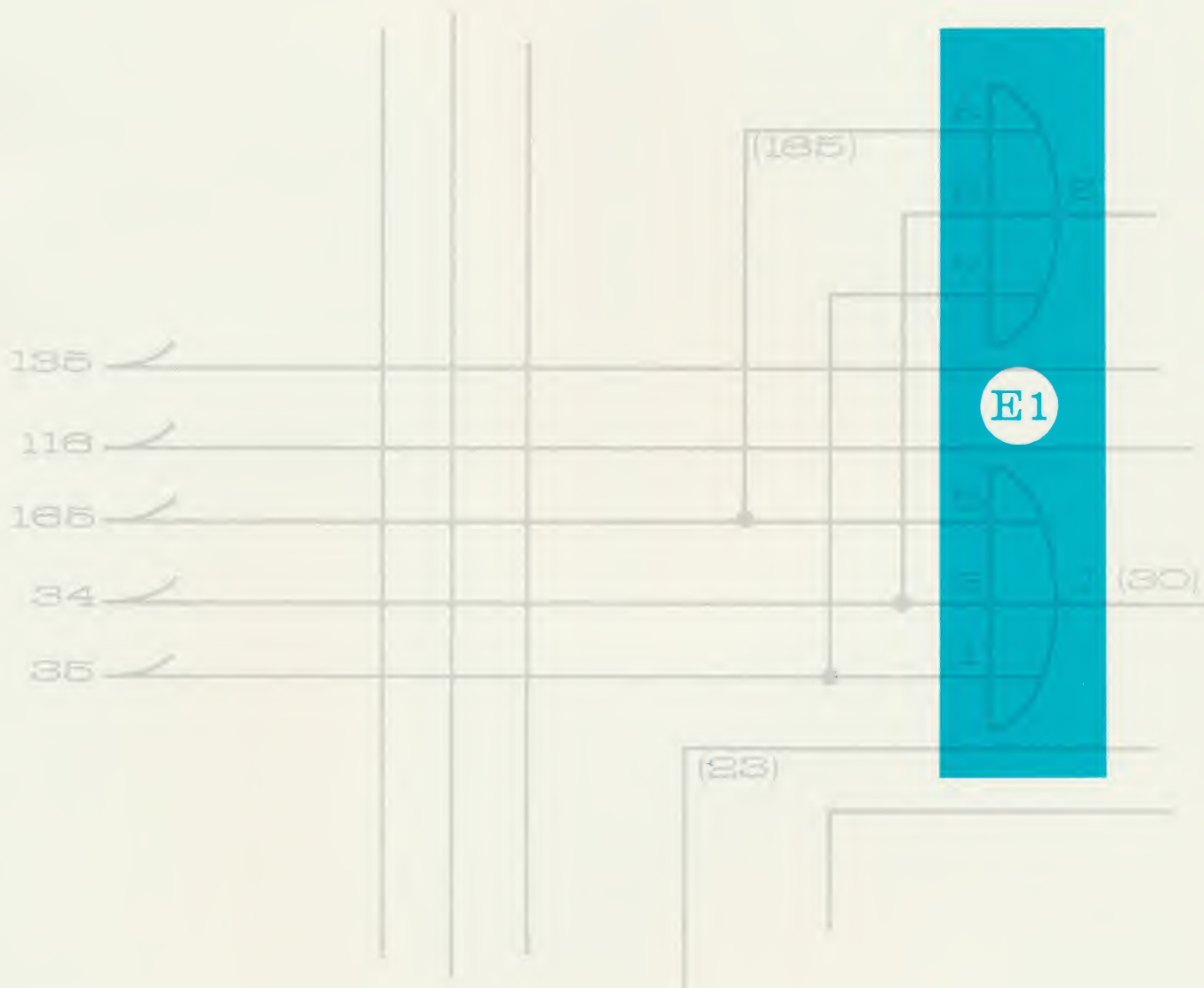


Fig. 2





In Figure 3, numbers and letters have been assigned to all module input-output connections with the exception of power and grounds. Individual circuit run numbers are enclosed in brackets.

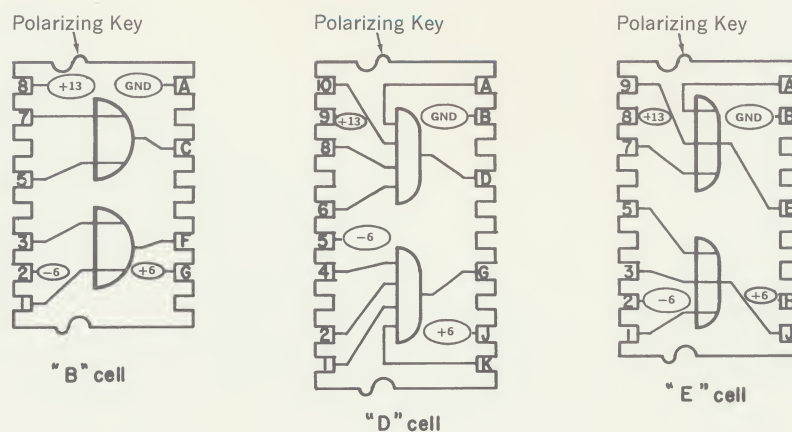
MODULE CONTACT AND CIRCUIT IDENTIFICATION

Fig. 3

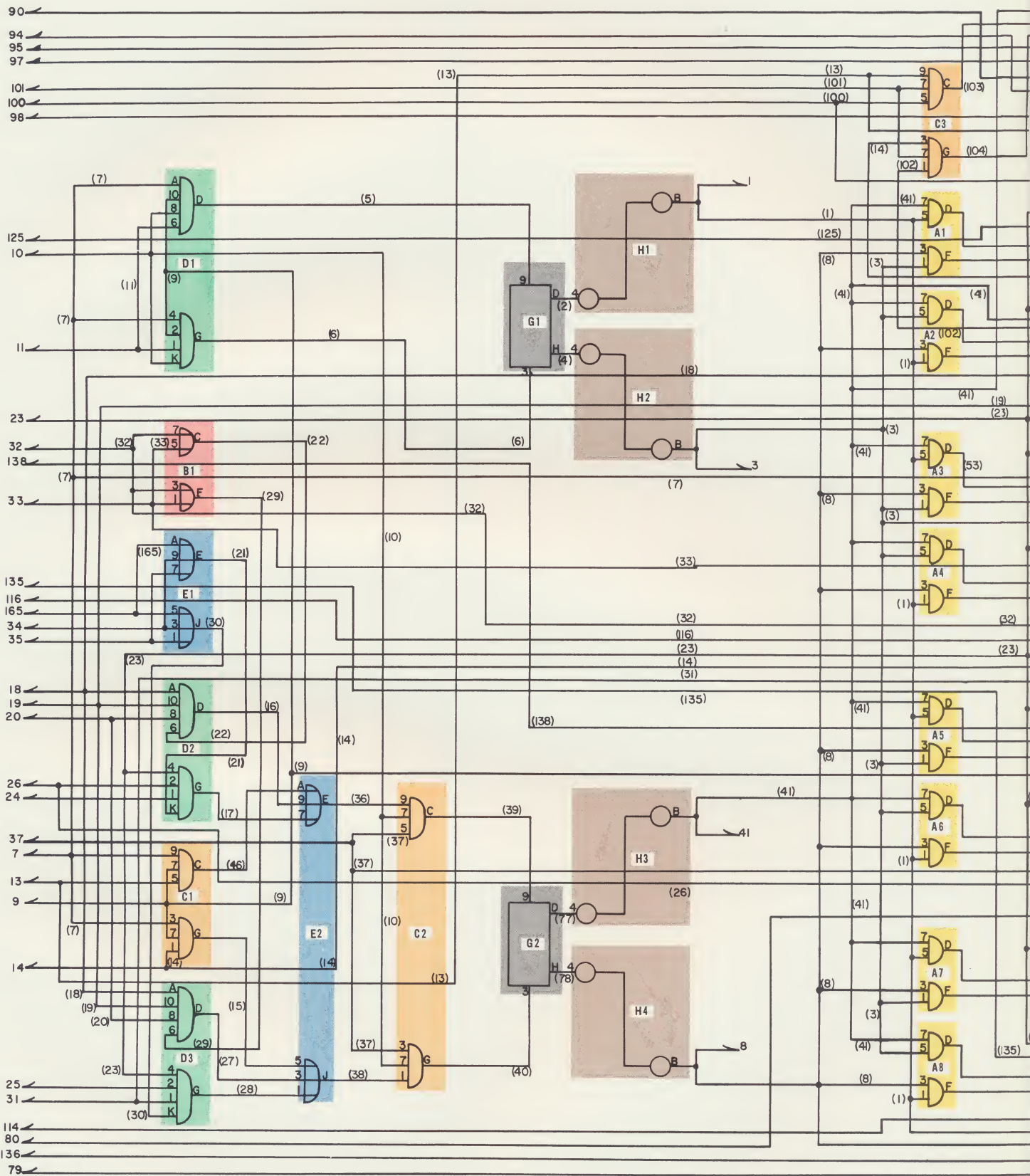
The alpha-numerical module input-output numbering system is compatible with the numbering system of the cell as illustrated below. Example 1 illustrates circuits (D) (B) (E) as they will appear identified in an AMP-MECA cell. This conversion is done in the following manner:

1. Draw a bottom view of an AMP-MECA cell as illustrated.
2. Indicate the symbolic function that will be contained in the cell.
3. Indicate the connections that must be made to module contacts, including power and ground connections.
4. Assign numbers to those contacts on the key side and letters to those on the opposite side.
5. Leave unused contact slots unnumbered and unlettered.
6. Select cell lengths which have 30 to 40% more contact slots than required for input-output contacts. Empty contact slots will later be used in providing circuit cross-overs.

Example 1



Cells shown in bottom view
Keying configuration shown on numbered side.



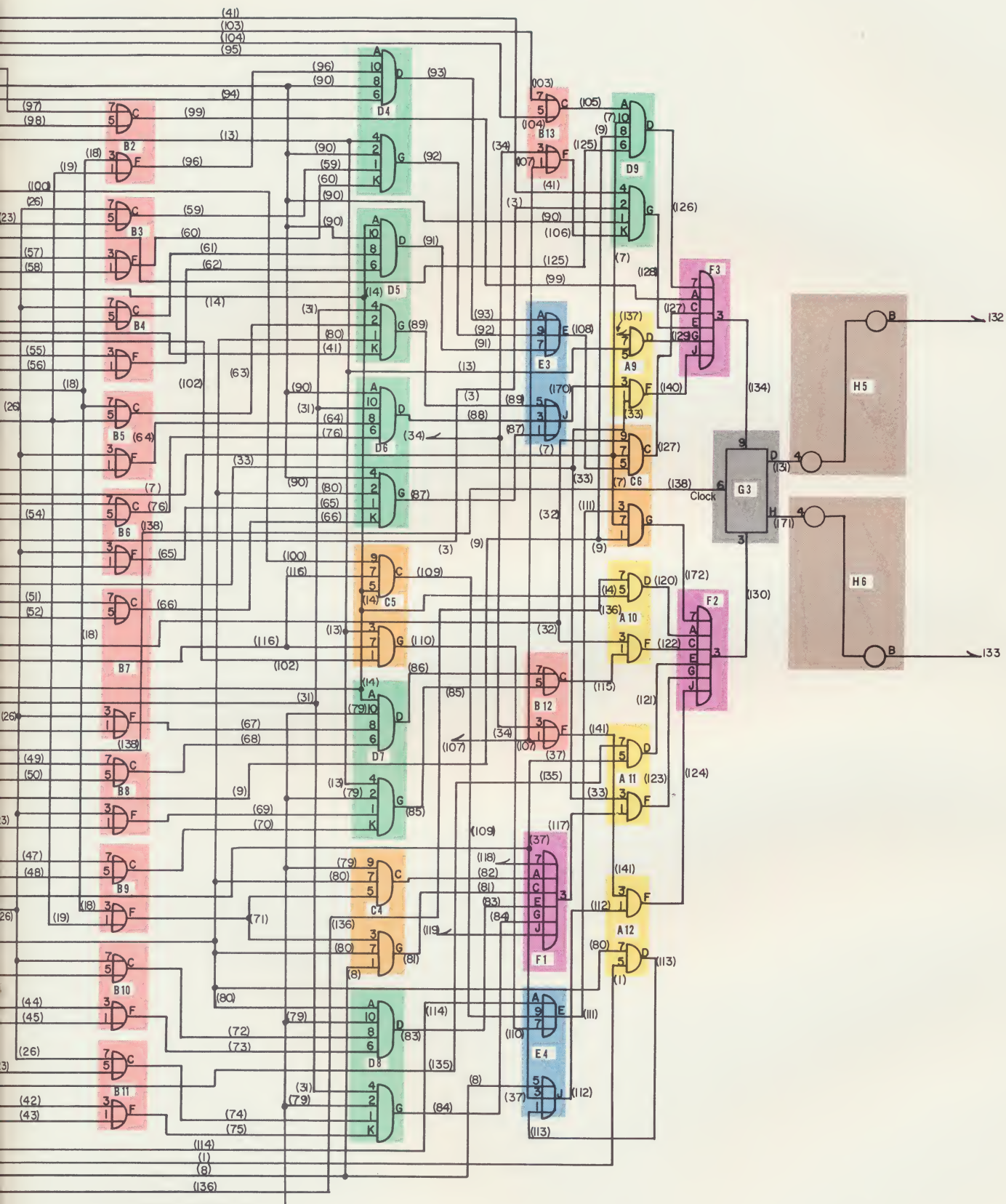


Fig. 3

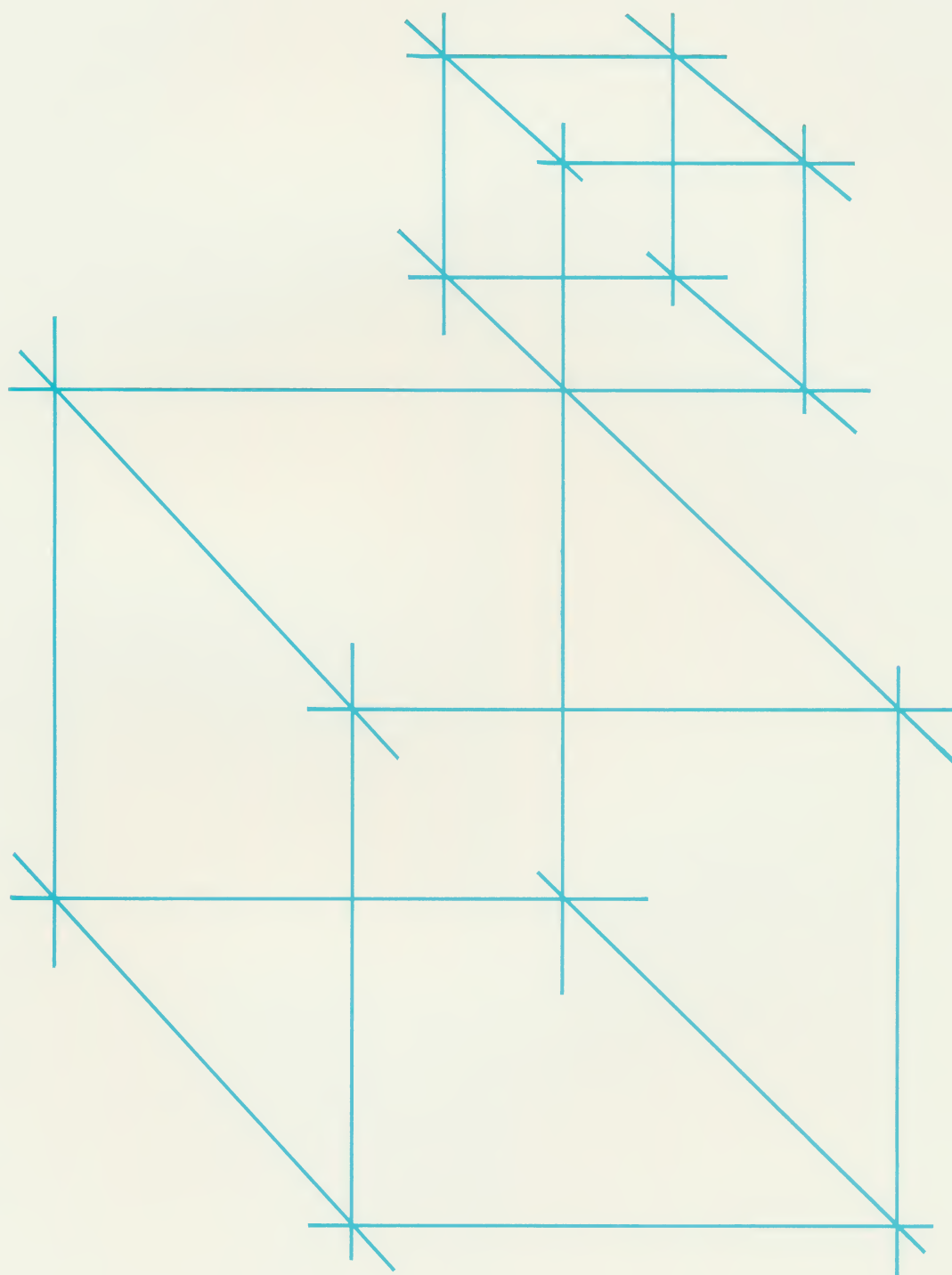


Fig. 4

AMP-MECA CIRCUIT LAYOUT CHART □ □ □ □

This chart provides the means of indicating, in two dimensions, module and circuit interconnections whose physical counterparts will be in three dimensions.

The nomenclature on the left hand side is the key to its use; however, you may find the following information of additional help:

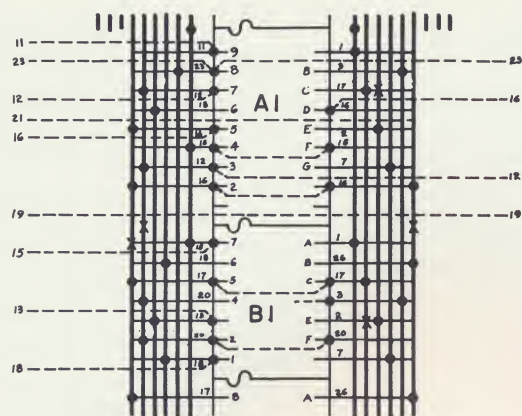
The chart will be used to illustrate a bottom view of a base printed circuit board on which circuit rails are mounted at right angles on top of the board. Imagine that the circuit rails have been folded away from the strings of modules and are lying flat on the baseboard with the bottom conductor adjacent to the bottom of the cell.

In this illustration the staff like configurations (circuit rail conductors) are shown to each have six conductor paths. The number of these conductors is dependent on the height of the module system chosen and the grid system employed (0.2", 0.1" or 0.050" grid). The .100" grid AMP-MECA System has been used in the accompanying layout. The short additional lines at the top and bottom of the chart are for your use in drawing in additional circuit rail circuit runs, if your module height and grid system require their use. The spacer and module keying locations are shown starting at the top of the chart and all spacers added must be drawn in a similar fashion. Spacers are located in first and last slot of each string and between each cell in the string.

Cell lengths permit circuit rail slots for spacers and rib contacts to be located on a .100" grid.

Remember again, *this is a bottom view of the finished assembly.*

Actual work charts, AMP Form 1573, which are four times the size of those included in this booklet, are available on request.



EXAMPLE BOTTOM VIEW

A1, B3, etc. Module Coding

Location of Spacers
and Keying of Cells

Letters and Numbers
as shown, indicate
presence of Cell Contacts

Circuit Rail

Connection of Rib
Contact to Circuit Rail

Connection of Rib
Contact to Base Printed
Circuit

Break in Circuit Rail
(Allow 2 Spaces From Nearest
Contact)

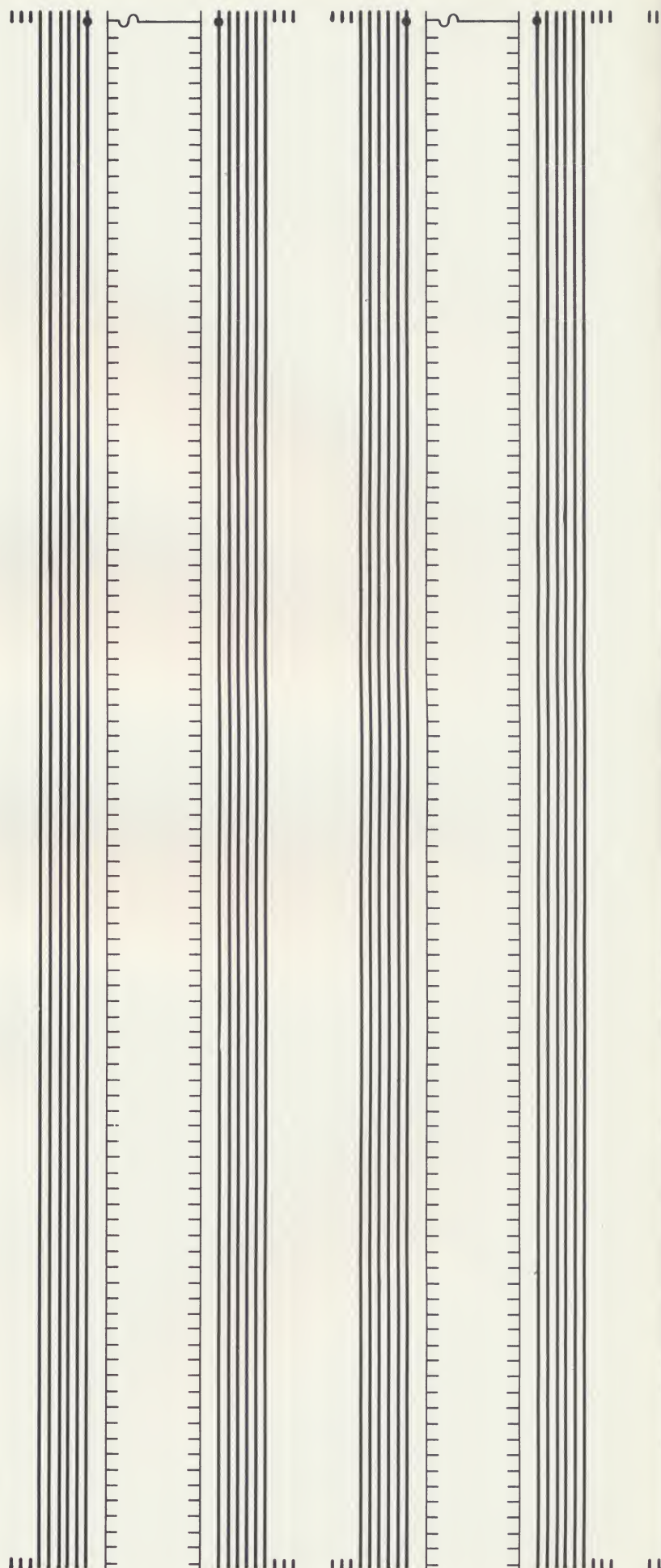
Base Board Printed Circuitry

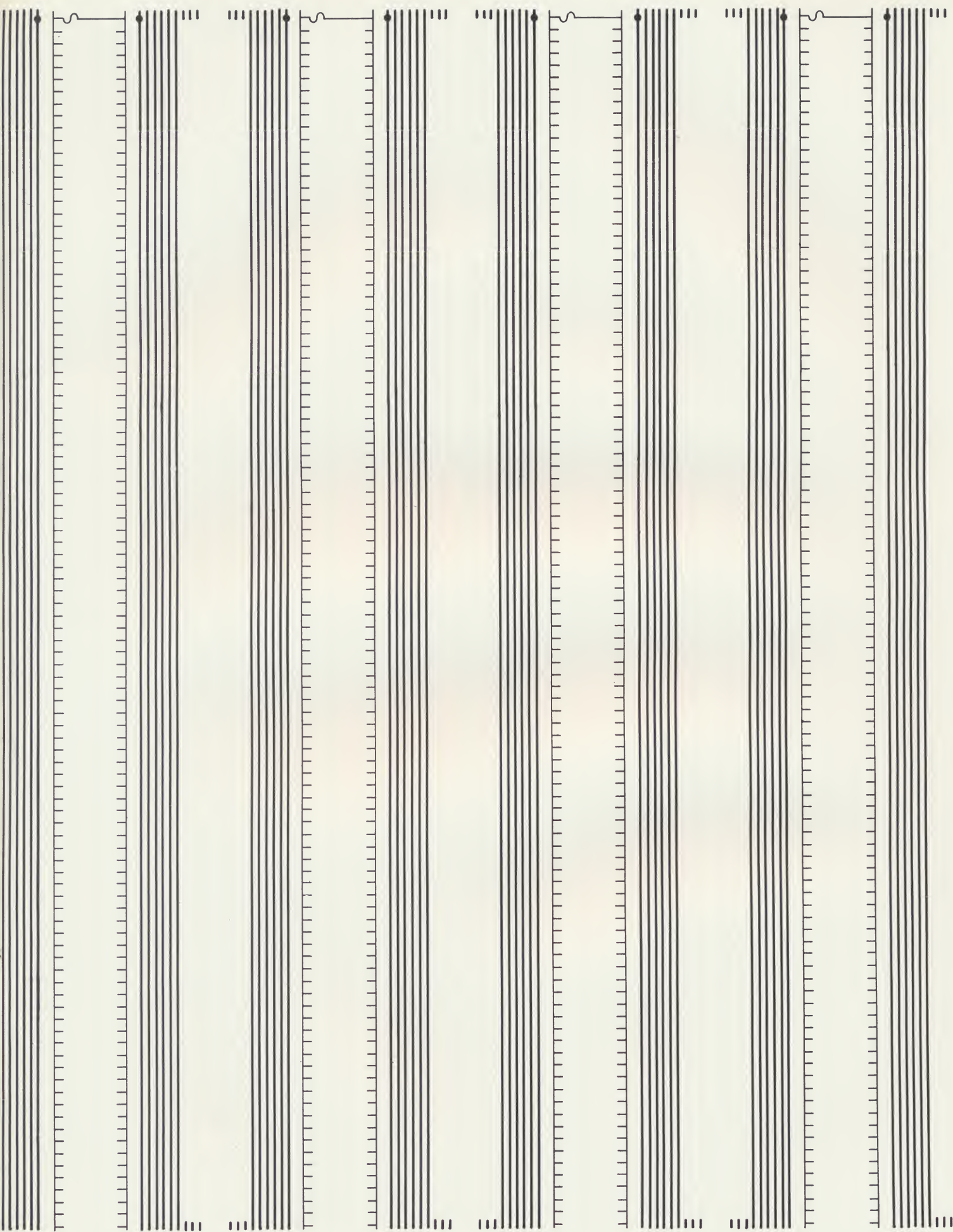
Numbers, as shown, indicate
Interconnecting Circuitry

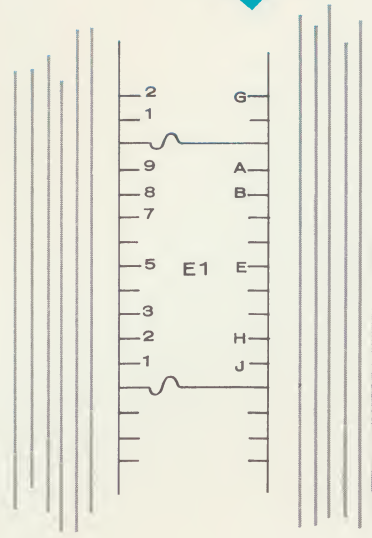
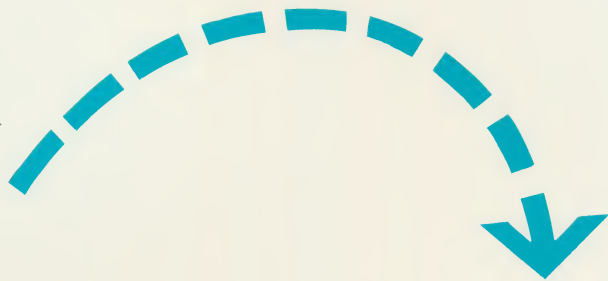
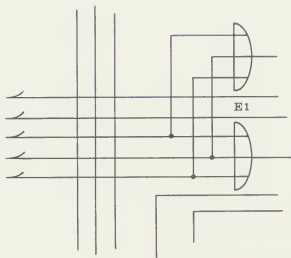
MECA CIRCUIT LAYOUT CHART



Fig. 4







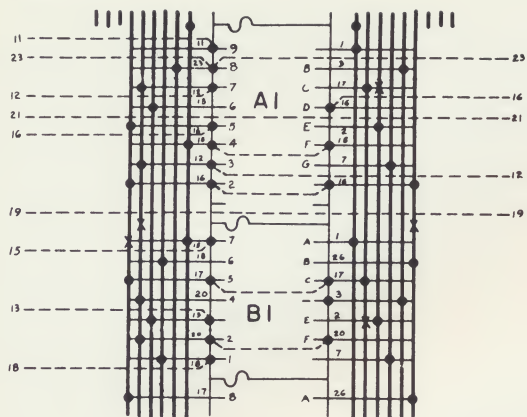
In this illustration the modules are shown as having been transferred to the chart from "Module Contact and Identification" (Fig. 3). The particular location of each module depends upon two parameters; mechanically arranging the strings of modules to constitute a compact package and maintaining short lead lengths.

PHYSICAL LOCATION OF MODULES Fig. 5

The spacers are drawn in as shown. The cell length dimension is determined by the total number of contact slots per cell.

The actual module input-output contact letters and numbers, as well as the module identification number, are then added inside the module block.

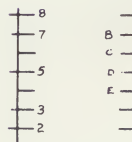
With a minimum amount of preliminary work, cell location can be determined quickly. Due to the flexibility of the final interconnecting system, it will rarely be necessary to rearrange the physical module layout.



EXAMPLE BOTTOM VIEW

A1, B3, etc. Module Coding

 Location of Spacers and Keying of Cells

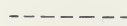
 Letters and Numbers as shown, indicate presence of Cell Contacts

 Circuit Rail

 Connection of Rib Contact to Circuit Rail

 Connection of Rib Contact to Base Printed Circuit

 Break in Circuit Rail (Allow 2 Spaces From Nearest Contact)

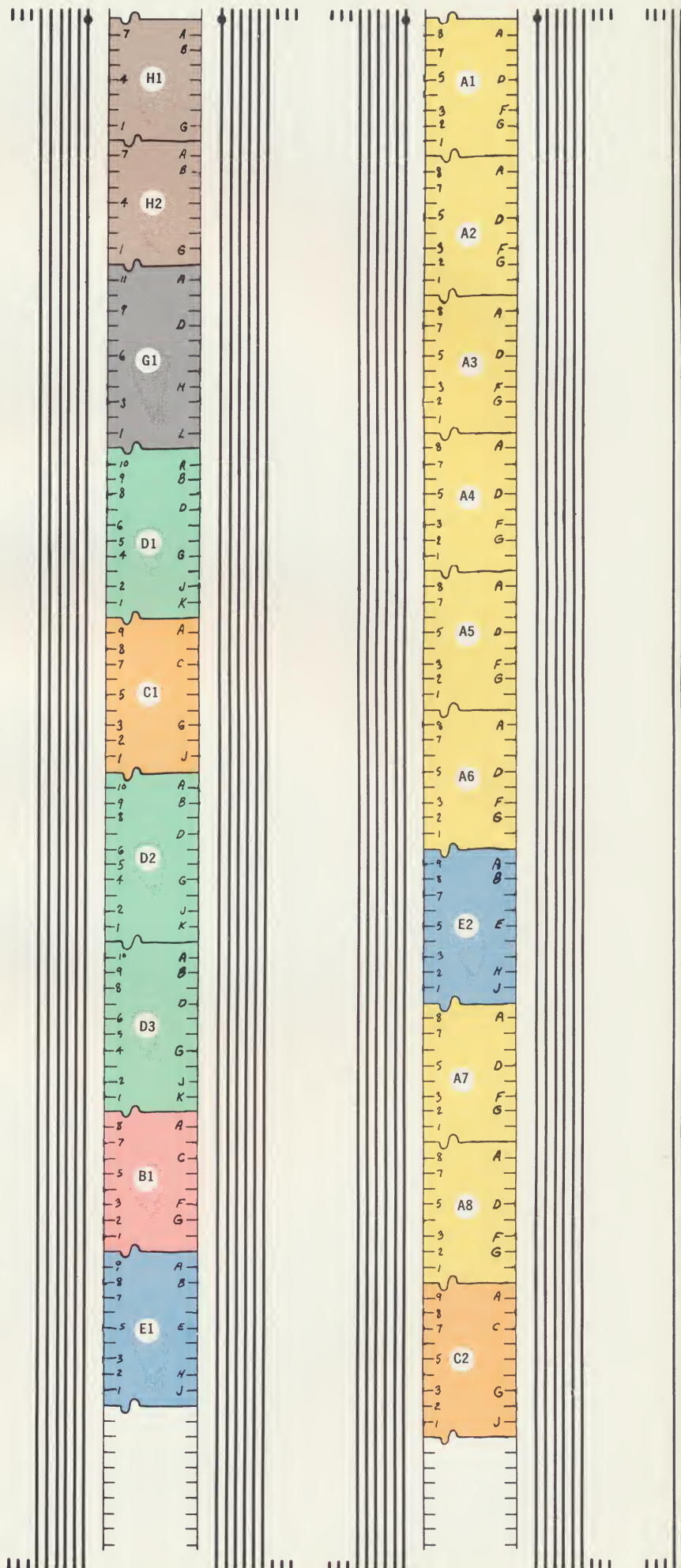
 Base Board Printed Circuitry

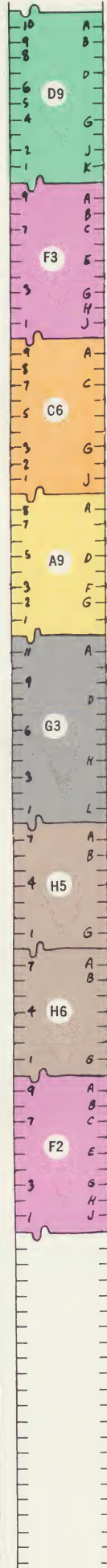
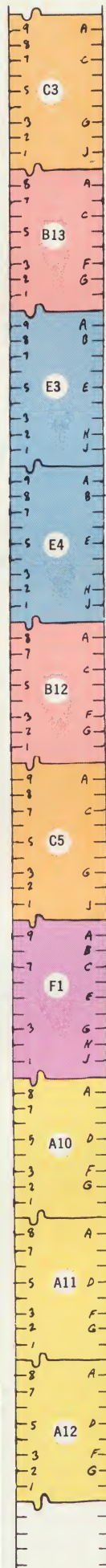
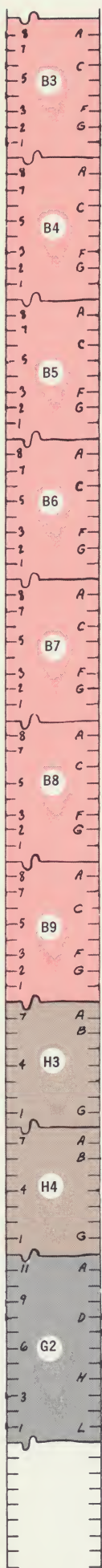
 Numbers, as shown, indicate Interconnecting Circuitry

MECA CIRCUIT LAYOUT CHART



Fig. 5





-6

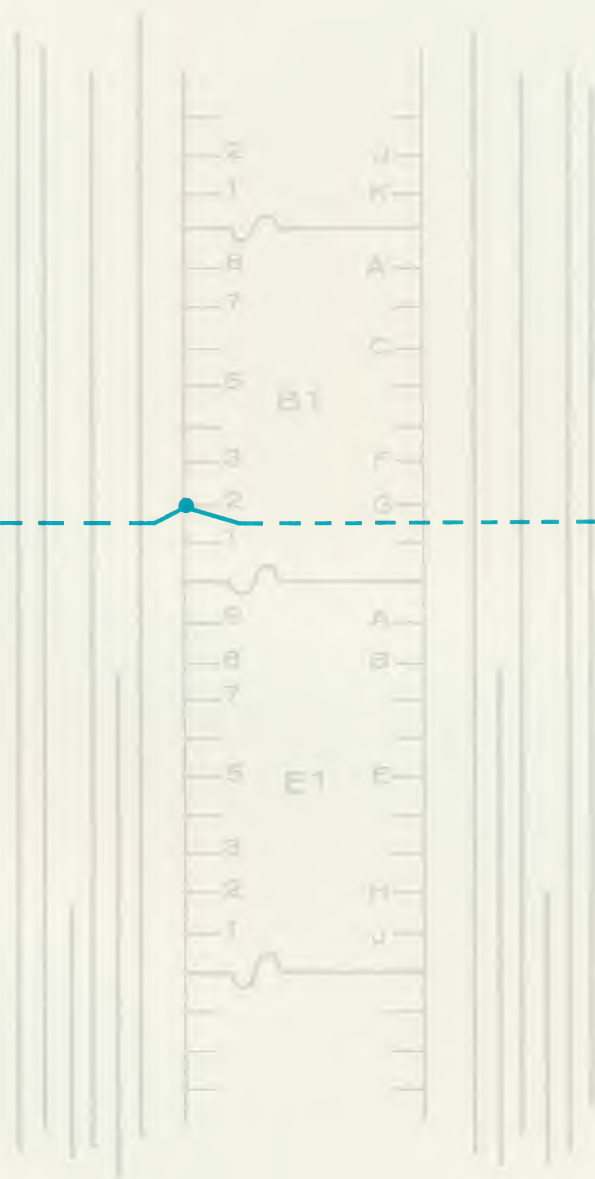


Fig. 6

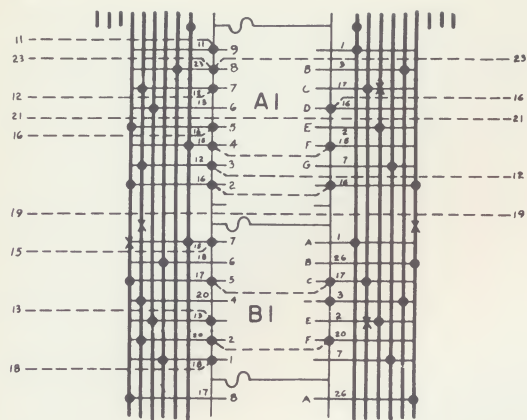
CONNECTION OF POWER BUSSES

Figure 6 shows the interconnection of power busses which generally comprises 30 to 40% of the total interconnection problem. The AMP-MECA Interconnection System makes the accomplishment of this step extremely easy.

As noted in the description of Figure 3 (Example 1), the contact identification for D.C. busses and grounds has been made.

Starting on the left side of the base card a dashed line is drawn to indicate a bus or ground. Each bus is thus connected to one circuit rail circuit on each "string" of modules. Where this connection is to be made, a solid dot is drawn adjacent to the module contact number or letter (not on the circuit rail).

A vertical line, representing the rib contact, is then drawn through this dot normal to and across the circuit rail circuit conductors. Depending upon the circuit rail circuit chosen to carry this D.C. power, another solid dot is drawn where this line intersects the circuit rail conductor. Additional connections in this string of the bus to other modules are then made in a like manner.



EXAMPLE
BOTTOM VIEW

A1, B3, etc. Module Coding

Location of Spacers
and Keying of Cells



Letters and Numbers
as shown, indicate
presence of Cell Contacts



Circuit Rail



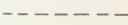
Connection of Rib
Contact to Circuit Rail



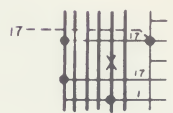
Connection of Rib
Contact to Base Printed
Circuit



Break in Circuit Rail
(Allow 2 Spaces From Nearest
Contact)



Base Board Printed Circuitry

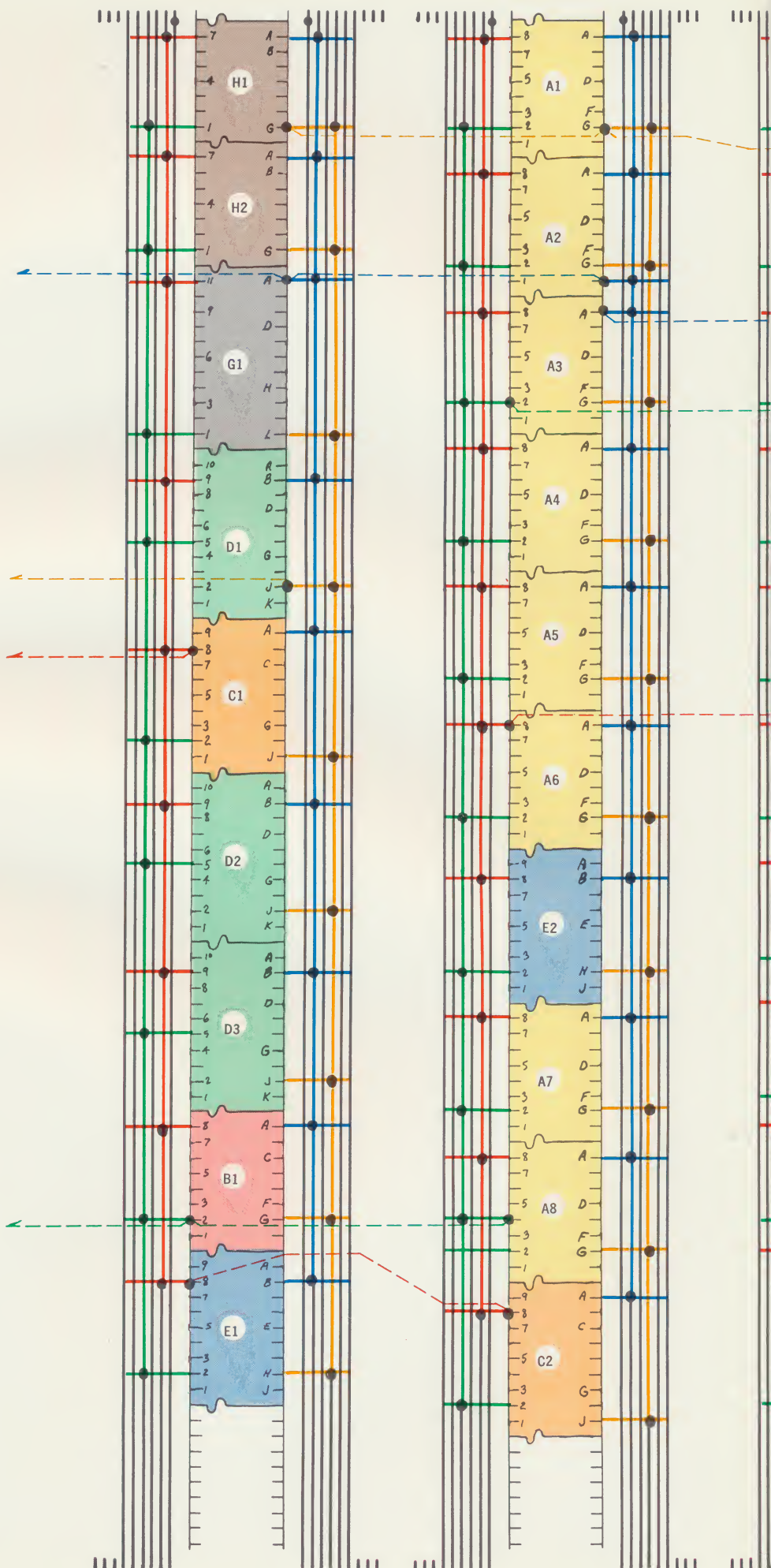


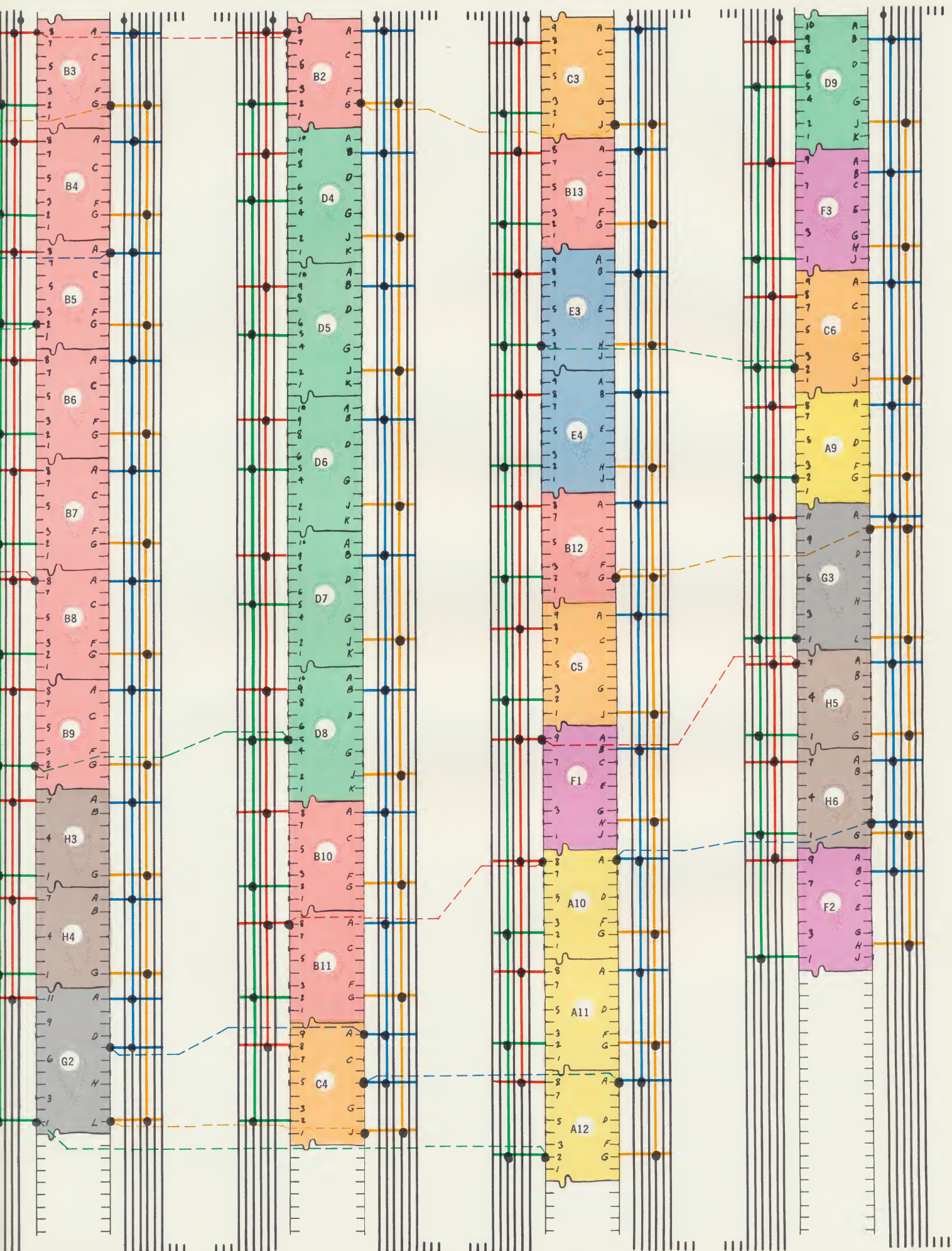
Numbers, as shown, indicate
Interconnecting Circuitry

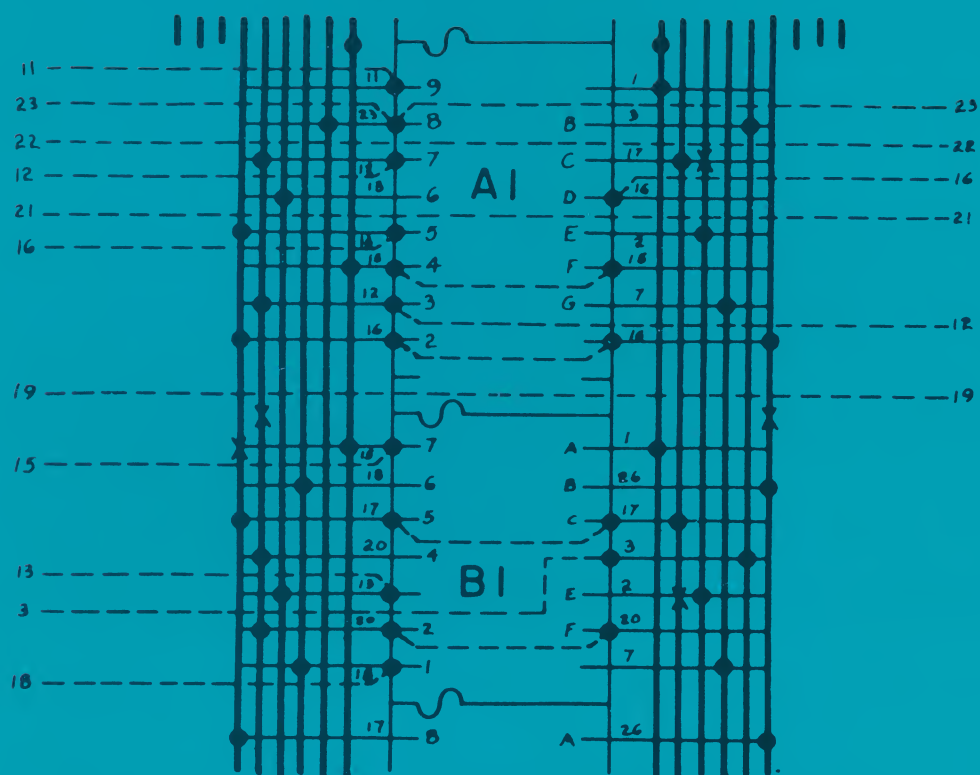
MECA CIRCUIT LAYOUT CHART

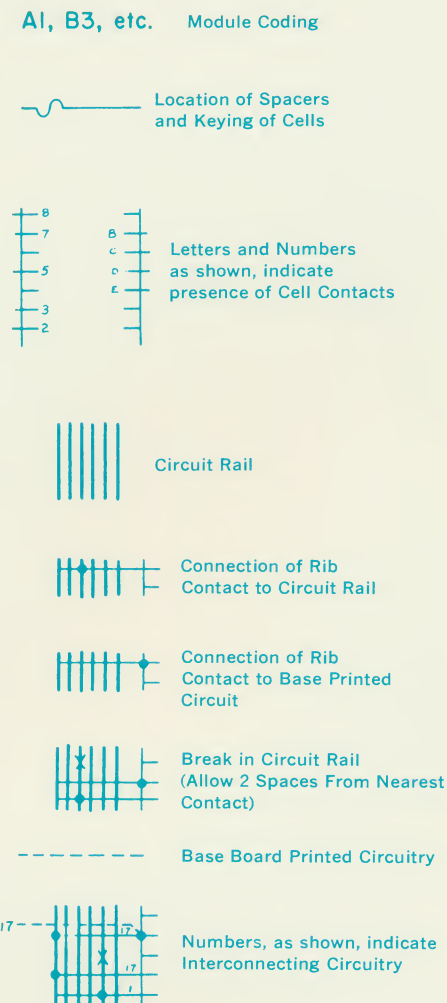


Fig. 6









This diagram, in addition to power connections as illustrated in Figure 6, includes all logic interconnections. This final layout provides all the information for constructing the hardware which performs the physical functions of the 55 modules which make up the layout.

By tracing one of the circuit runs on the numbered logic flow diagram, as it now appears in this illustration, you can see how easily these interconnections have been made.

Remember the following:

Dashed lines indicate base circuit conductor paths on mother board. The vertical lines crossing the circuit rail illustrate vertical rib contacts which can be used to connect with—

1. the base circuit
2. a circuit rail
3. a module cell contact
4. or any combination of the three

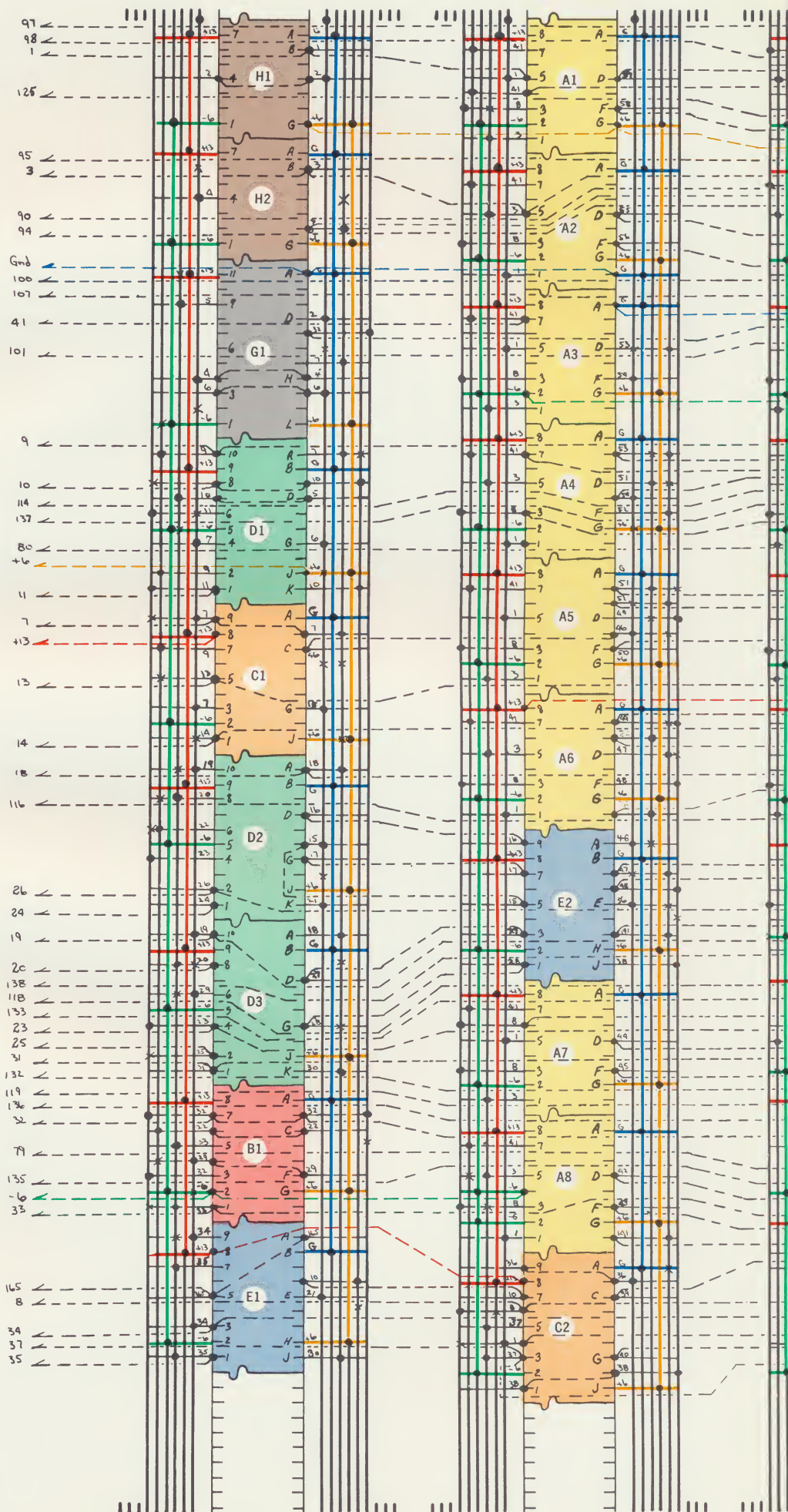
You will also note that interruptions of the circuit rail conductors are designated by an "X". This allows the reuse of other portions of the circuit rail conductors as additional isolated circuit paths for logic connections.

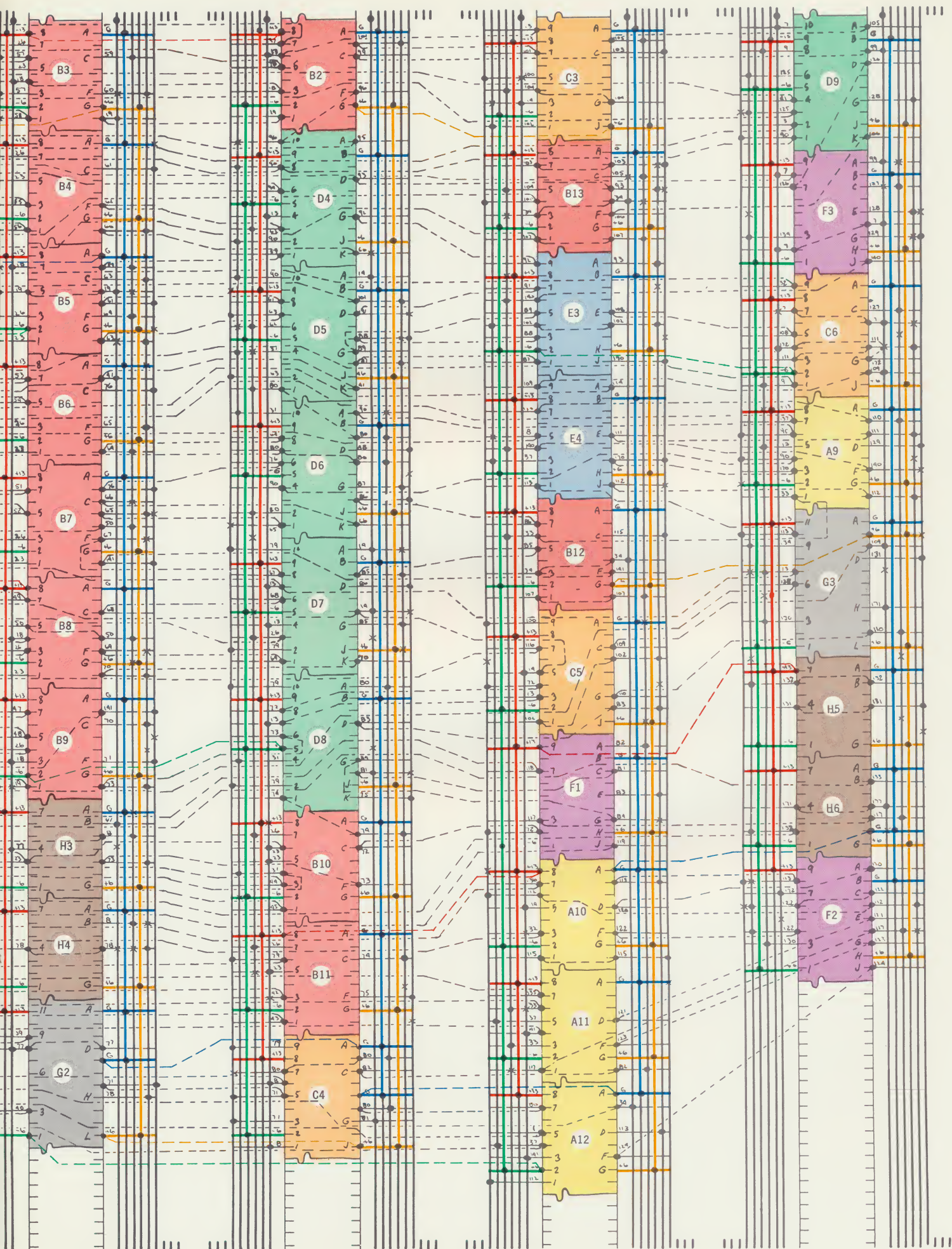
Certain other considerations can be helpful in avoiding difficulty when laying out the base printed circuit board.

1. Do not run any base circuit lines between two solder paths that are less than two spaces apart.
2. Use the ribs and circuit rail conductors as "jumpers" to cross over base circuit paths. These cross-overs are made possible by utilizing the empty cell slots mentioned in Figure 3, Step 6. An example is shown in Figure 7, module H1, Circuit #2.
3. A rib contact should never connect to more than one circuit rail conductor bus; therefore, only one time per rib contact is required. Any deviation from this procedure will result in increased conductor lengths, number of solder connections and lost additional conductor paths.

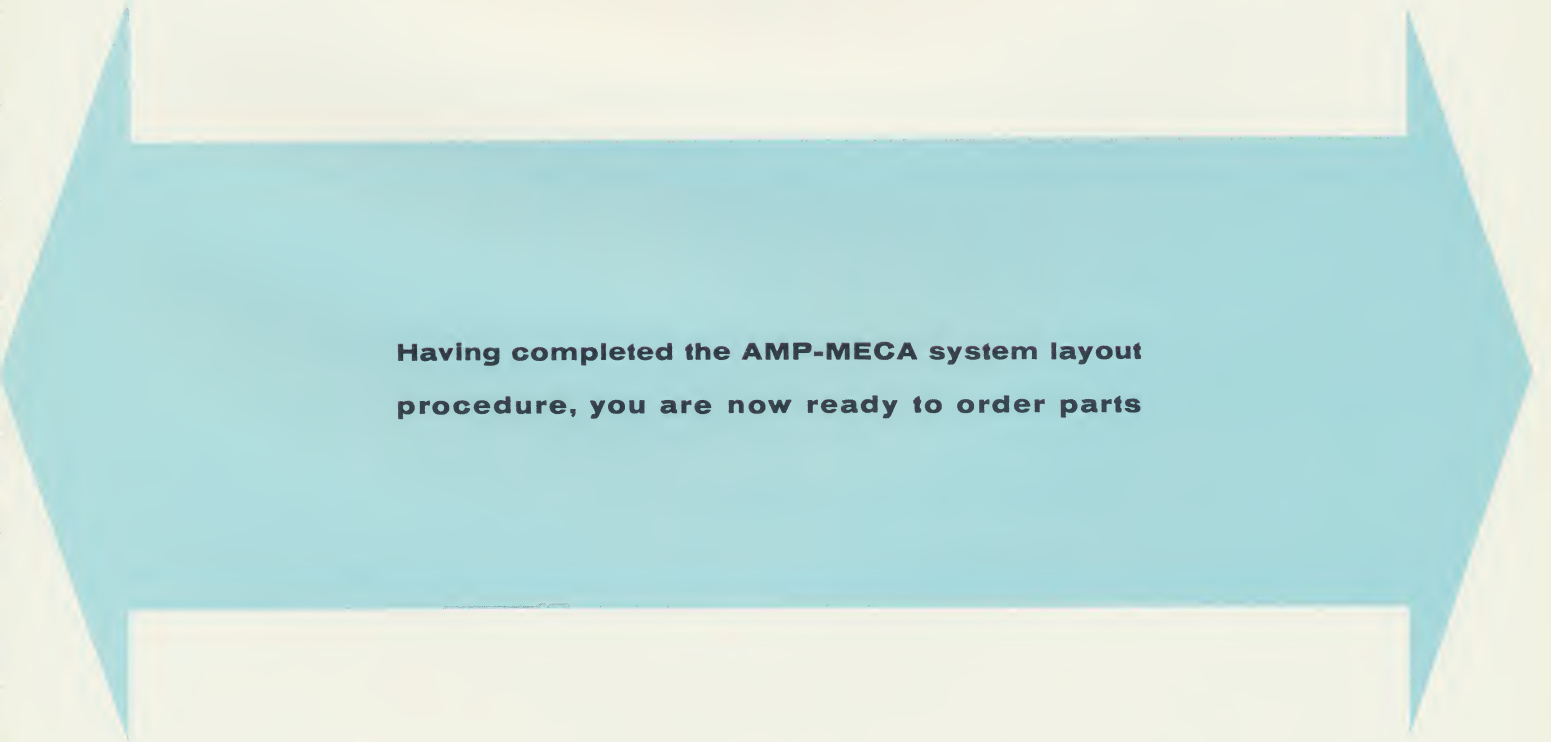
If you encounter any difficulty in applying the AMP-MECA Interconnection System to your requirements, contact the AMP-MECA Section of AMP INCORPORATED.

Fig. 7

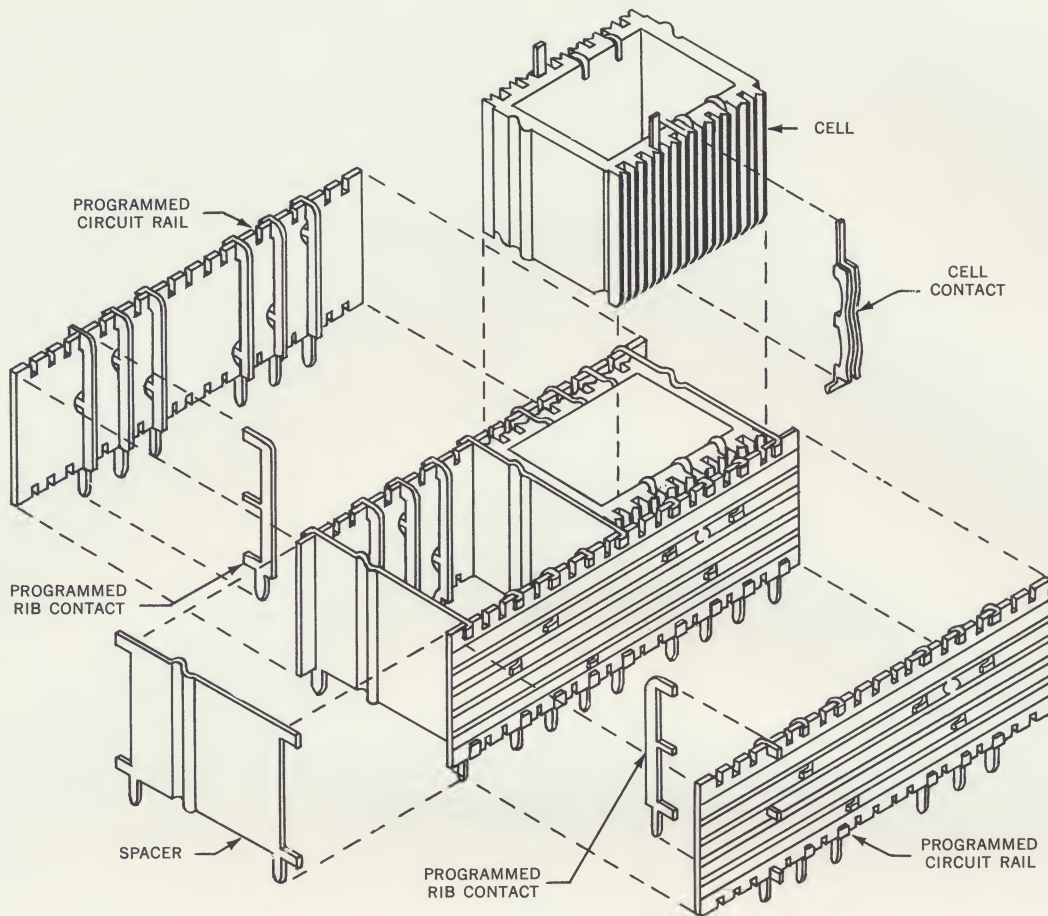




**PROCEDURE
FOR
ORDERING
AMP-MECA
CELLS
AND
ASSOCIATED
PARTS**

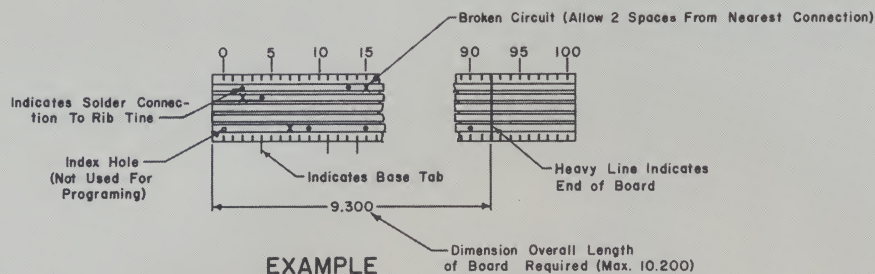


**Having completed the AMP-MECA system layout
procedure, you are now ready to order parts**

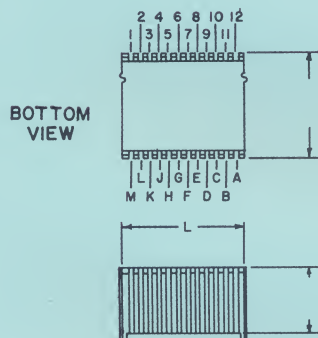
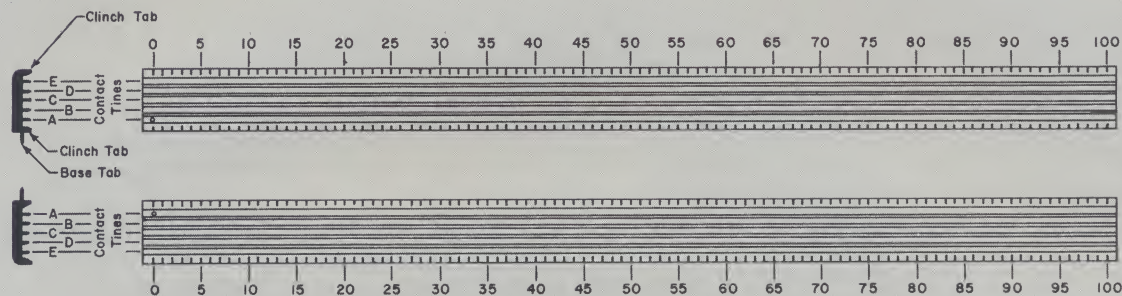


The following options are available when ordering the AMP-MECA System parts:

1. Cells with contacts installed in all slot locations to be specified by customer. (AMP Form #1651 or its facsimile should be used to easily identify cells and their associated contact locations.)
2. Spacers supplied in loose piece (not assembled to rails).
3. Circuit rails cut to required length, slotted on top and bottom and with continuous conductor busses.
4. Circuit rails with holes, interruptions and rib contacts programmed and soldered to specific requirements. (AMP Form #1650 or #1650-1 or its facsimile should be used for identification and ordering purposes.)
5. Rib contacts can be supplied in continuous strip ready for programming and assembly by the customer.
6. Rib contacts supplied in loose piece (cut from strip form) with base tang and contact tines intact.
7. Rib contacts in loose piece with programmed tines and/or tangs.



EXAMPLE



Cells, Regardless of Size, Are Numbered Consecutively From 1 on the Keyed Side, And Lettered Consecutively From A (Excepting Letter I) on the Opposite Side As Shown.

AMP CELL NO.	L	AMP CELL CONTACT NO.	CELL CONTACTS LOCATED AT:

CHECK LIST FOR ORDERING AMP-MECA SYSTEM PARTS

The following data is included as an example of what specific information should be given when ordering parts for the AMP-MECA Interconnection System. This is not intended to serve as a strict form as much as a guide to insure that all necessary parts will be included in the order.

QUANTITY	CELL NUMBER	CELL CONTACT NUMBER	CELL CONTACT LOCATIONS (BOTTOM VIEW***)	SPACERS	
				CATALOG NO.	QUANTITY
1000	4-85000-2	85007-3	2-3-4-5-7-8-9- L-K-J-H-F-E-D-	85013-1	
1000	4-85000-1	85007-3	All Contacts Installed		

QUANTITY	CIRCUIT RAIL	NUMBER OF INS. IN TENTHS/EA. OVERALL RAIL LENGTH*	PROGRAMMED AND SOLDERED**	NUMBER OF RIB CONTACTS INSTALLED IN RAIL	CUSTOMER PART NUMBER
400	85001-1	5.7	Programmed & Soldered	40	XYZ-46235
150	85001-1	5.7	Unprogrammed	—	

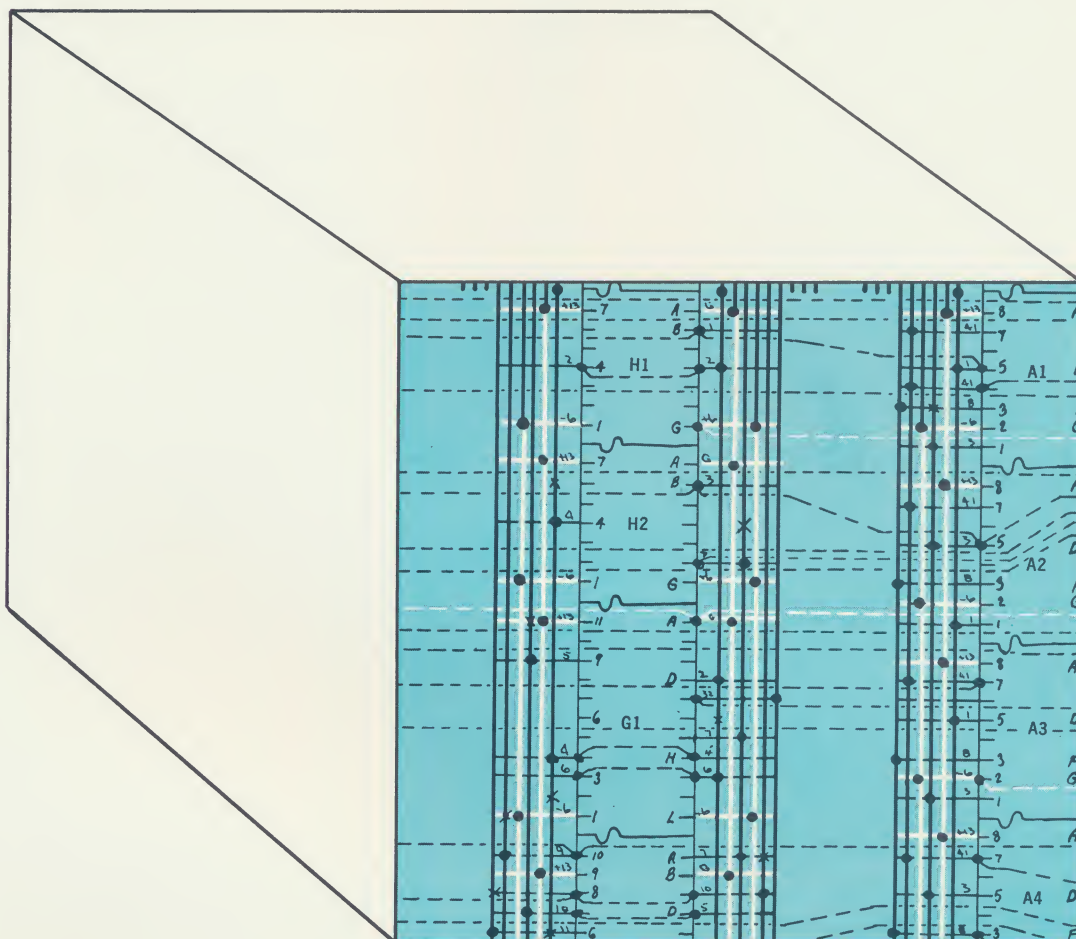
QUANTITY	RIB CONTACTS (STRIP STOCK)	RIB CONTACTS LOOSE PIECE WITH ALL TINES	RIB CONTACTS WITH TINES PROGRAMMED****
6,000		85304-7	
2,000			85305-1
2,500			85304-3

*Length of rail is total length of all cells in string + .200" for extension.
(.100" extension required beyond the first and last spacer.)

**Use AMP Form #1650 to identify rail and contact programming information.

***AMP Form #1651 used to identify cell contact locations.

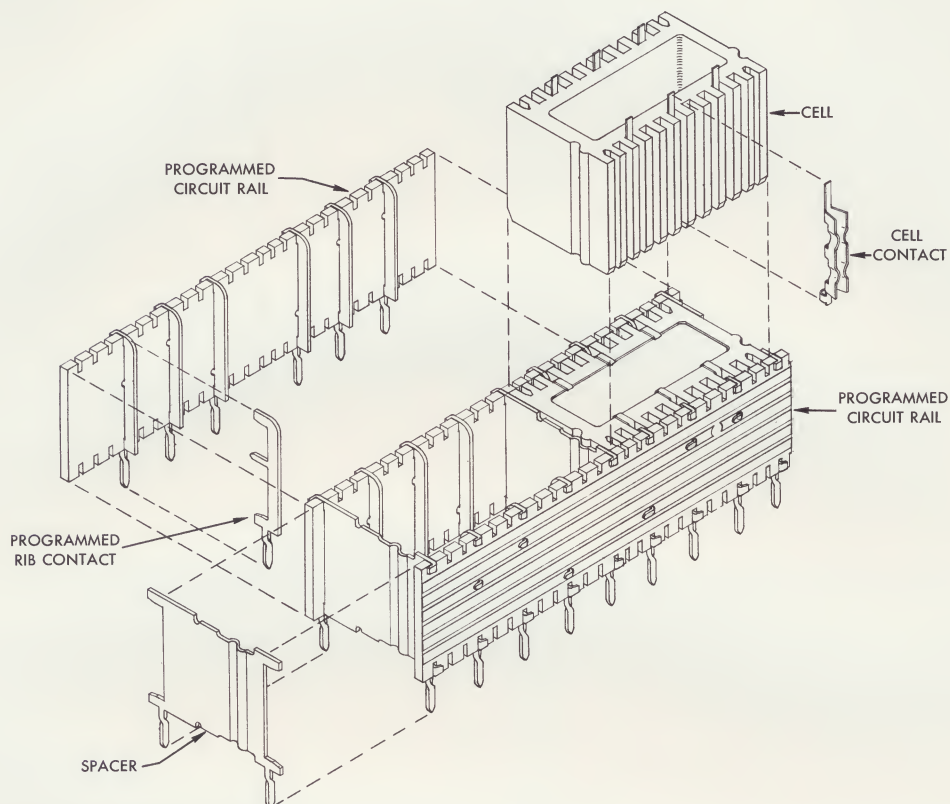
****Refer to tabular data sheets.



TABULAR DATA FOR AMP-MECA* CELLS .050 GRID SPACING—CELL HEIGHT .400

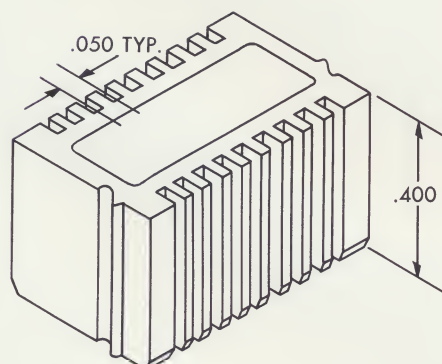
THIS SHEET LISTS ALL HARDWARE FOR THIS CELL

Issued 6-63

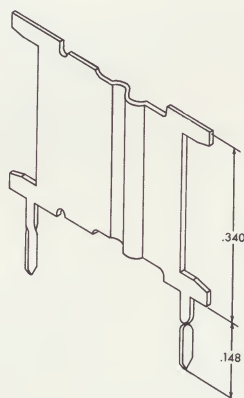


TYPICAL AMP-MECA ASSEMBLY

The width and length of the cell are determined by the size of the components to be contained within the cell, and by the amount of cell contacts which are to be used. The width of the cell spacer is of course determined by the width of the cell. For exact dimensions and other size limitations consult AMP engineering.



CELL
Material—Glass
Filled Diallyl Phthalate

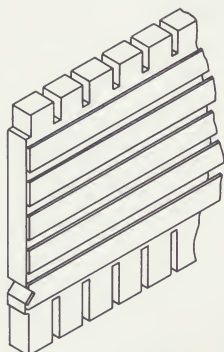


CELL SPACER
Material—Phosphor Bronze

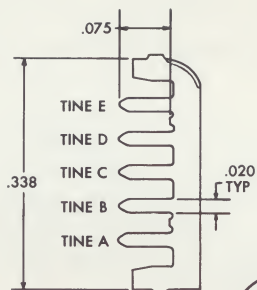


CELL CONTACT
Material—Gold Plated
Phosphor Bronze

5
Conductor
Paths
(copper clad)



CIRCUIT RAIL
#85367-1
1/32" thick glass epoxy

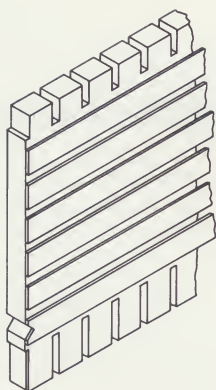


RIB CONTACT #85414-2
Material—Gold Plated Phosphor Bronze

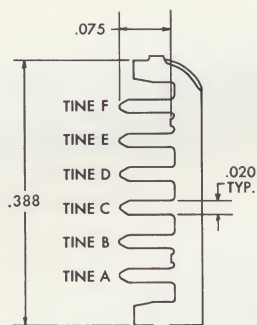
TINE PROGRAMMING

	PART NO.	TINE LEFT ON
NO BASE TANG	85414-1	A
	85414-2	B
	85414-3	C
	85414-4	D
	85414-5	E
	85414-6	NONE
	85414-7	ALL ON
BASE TANG TWISTED 90°	1-85414-1	A
	1-85414-2	B
	1-85414-3	C
	1-85414-4	D
	1-85414-5	E
	1-85414-6	NONE
	1-85414-7	ALL ON

6
Conductor
Paths
(copper clad)



CIRCUIT RAIL
#85498-1
1/32" thick glass epoxy



RIB CONTACT #85494-2
Material—Gold Plated Phosphor Bronze

TINE PROGRAMMING

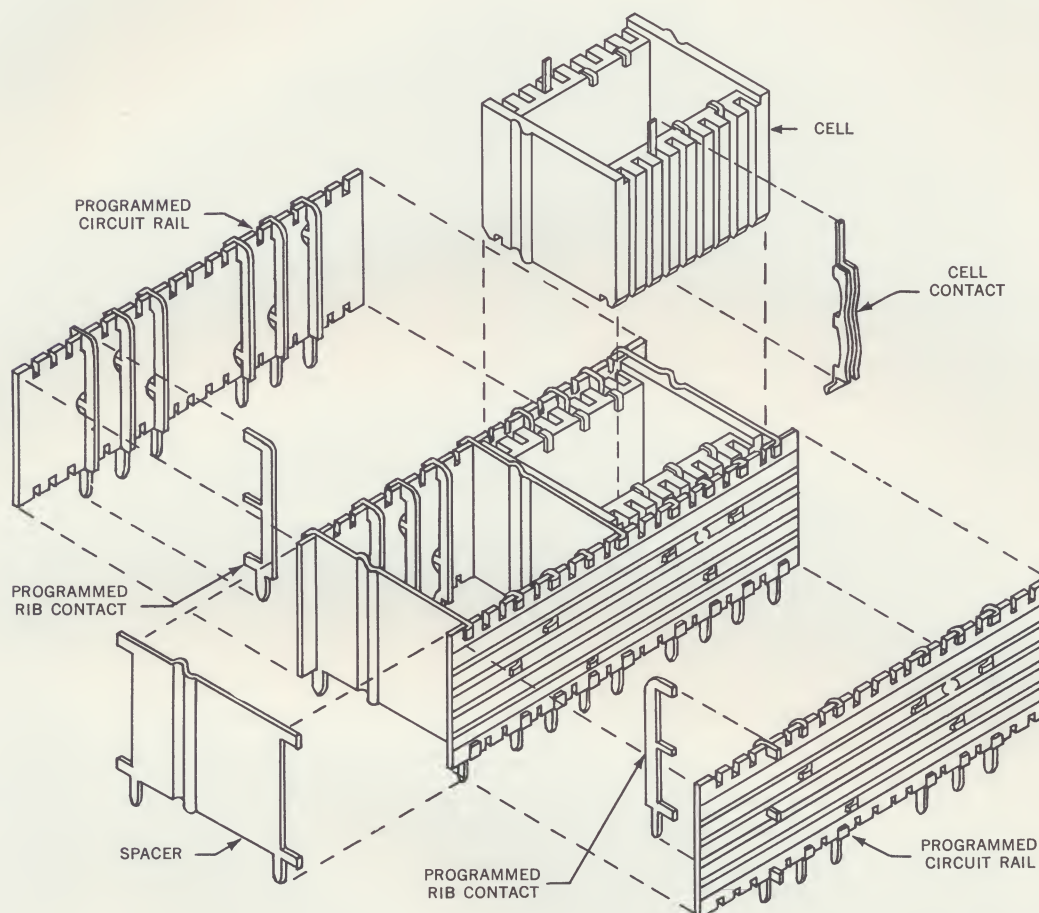
	PART NO.	TINE LEFT ON
BASE TANG REMOVED	85494-1	A
	85494-2	B
	85494-3	C
	85494-4	D
	85494-5	E
	85494-6	F
	85494-7	NONE
	85494-8	ALL ON
BASE TANG TWISTED 90°	1-85494-1	A
	1-85494-2	B
	1-85494-3	C
	1-85494-4	D
	1-85494-5	E
	1-85494-6	F
	1-85494-7	NONE
	1-85494-8	ALL ON

AMP INCORPORATED

HARRISBURG, PA.

Issued 4-63

AMP-MECA[★] INTERCONNECTION SYSTEM PROTOTYPE KITS .100 GRID—CELL HEIGHT .700



THESE CONSIST OF THE FOLLOWING:

KIT NO.	QUANTITY	DESCRIPTION	INDIVIDUAL AMP CATALOG NO.*
85338-1	2	Circuit rails (5 conductors) 6.8 inches long	85002
	75	Rib contacts	85304-7
	3	Cells with 16 each 85007-3 cell contacts inserted	2-85000-9
	2	Cells with 32 each 85007-3 cell contacts inserted	8-85000-9
	6	Spacers	85012-1
85339-1	2	Circuit rails (5 conductors) 6.8 inches long	85002
	75	Rib contacts	85304-7
	1	Cell with 12 each 85007-3 cell contacts inserted	3-85000-8
	2	Cells with 16 each 85007-3 cell contacts inserted	4-85000-0
	1	Cell with 20 each 85007-3 cell contacts inserted	4-85000-2
	2	Cells with 24 each 85007-3 cell contacts inserted	4-85000-4
	7	Spacers	85013-1

* For dimensions and materials refer to AMP-MECA Interconnection System Handbook—AMP-MECA cell height .700

THESE KITS CONSIST OF THE FOLLOWING:

KIT NO	QUANTITY	DESCRIPTION	INDIVIDUAL AMP CATALOG NO.*
85340-1	2	Circuit rails (5 conductors) 6.8 inches long	85002-1
	75	Rib contacts	85304-7
	1	Cell with 12 each 85007-3 cell contacts inserted	6-85000-0
	2	Cells with 16 each 85007-3 cell contacts inserted	6-85000-2
	1	Cell with 20 each 85007-3 cell contacts inserted	6-85000-4
	2	Cells with 24 each 85007-3 cell contacts inserted	6-85000-6
	7	Spacers	85015-1
85341-1	2	Circuit rails (5 conductors) 6.8 inches long	85002-1
	75	Rib contacts	85304-7
	3	Cells with 12 each 85007-3 cell contacts inserted	8-85000-2
	3	Cells with 16 each 85007-3 cell contacts inserted	8-85000-4
	7	Spacers	85017-1
85342-1	2	Circuit rails (5 conductors) 6.8 inches long	85002-1
	75	Rib contacts	85304-7
	3	Cells with 16 each 85007-3 cell contacts inserted	8-85106-4
	3	Cells with 24 each 85007-3 cell contacts inserted	8-85106-8
	7	Spacers	85017-1
85343-1	2	Circuit rails (5 conductors) 6.8 inches long	85002-1
	75	Rib contacts	85304-7
	1	Cell with 12 each 85007-3 cell contacts inserted	4-85000-9
	2	Cells with 16 each 85007-3 cell contacts inserted	5-85000-1
	1	Cell with 20 each 85007-3 cell contacts inserted	5-85000-3
	2	Cells with 24 each 85007-3 cell contacts inserted	5-85000-5
	7	Spacers	85014-1
85376-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	3	Cells with 16 each 85007-3 cell contacts inserted	2-85000-9
	2	Cells with 32 each 85007-3 cell contacts inserted	8-85000-9
	6	Spacers	85012-1
85377-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	3	Cells with 16 each 85314-2 cell contacts inserted	2-85000-9
	2	Cells with 32 each 85314-2 cell contacts inserted	8-85000-9
	6	Spacers	85012-1

* For dimensions and materials refer to AMP-MECA Interconnection System Handbook—AMP-MECA cell height .700

THESE KITS CONSIST OF THE FOLLOWING:

KIT NO.	QUANTITY	DESCRIPTION	INDIVIDUAL AMP CATALOG NO.*
85378-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	1	Cell with 12 each 85007-3 cell contacts inserted	3-85000-8
	2	Cells with 16 each 85007-3 cell contacts inserted	4-85000-0
	1	Cell with 20 each 85007-3 cell contacts inserted	4-85000-2
	2	Cells with 24 each 85007-3 cell contacts inserted	4-85000-4
	7	Spacers	85013-1
85379-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	1	Cell with 12 each 85314-2 cell contacts inserted	3-85000-8
	2	Cells with 16 each 85314-2 cell contacts inserted	4-85000-0
	1	Cell with 20 each 85314-2 cell contacts inserted	4-85000-2
	2	Cells with 24 each 85314-2 cell contacts inserted	4-85000-4
	7	Spacers	85013-1
85380-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	1	Cell with 12 each 85007-3 cell contacts inserted	6-85000-0
	2	Cells with 16 each 85007-3 cell contacts inserted	6-85000-2
	1	Cell with 20 each 85007-3 cell contacts inserted	6-85000-4
	2	Cells with 24 each 85007-3 cell contacts inserted	6-85000-6
	7	Spacers	85015-1
85381-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	1	Cell with 12 each 85314-2 cell contacts inserted	6-85000-0
	2	Cells with 16 each 85314-2 cell contacts inserted	6-85000-2
	1	Cell with 20 each 85314-2 cell contacts inserted	6-85000-4
	2	Cells with 24 cell contacts 85314-2 inserted	6-85000-6
	7	Spacers	85015-1

* For dimensions and materials refer to AMP-MECA Interconnection System Handbook—AMP-MECA cell height .700

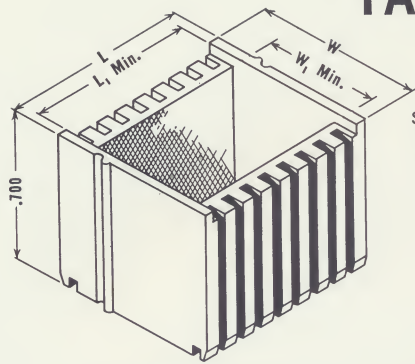
THESE KITS CONSIST OF THE FOLLOWING:

KIT NO.	QUANTITY	DESCRIPTION	INDIVIDUAL AMP CATALOG NO.*
85382-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	3	Cells with 12 each 85007-3 cell contacts inserted	8-85000-2
	3	Cells with 16 each 85007-3 cell contacts inserted	8-85000-4
	7	Spacers	85017-1
85383-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	3	Cells with 12 each 85314-2 cell contacts inserted	8-85000-2
	3	Cells with 16 each 85314-2 cell contacts inserted	8-85000-4
	7	Spacers	85017-1
85384-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	1	Cell with 12 each 85007-3 cell contacts inserted	4-85000-9
	2	Cells with 16 each 85007-3 cell contacts inserted	5-85000-1
	1	Cell with 20 each 85007-3 cell contacts inserted	5-85000-3
	2	Cells with 24 each 85007-3 cell contacts inserted	5-85000-5
	7	Spacers	85014-1
85385-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-84304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	1	Cell with 12 each 85314-2 cell contacts inserted	4-85000-9
	2	Cells with 16 each 85314-2 cell contacts inserted	5-85000-1
	1	Cell with 20 each 85314-2 cell contacts inserted	5-85000-3
	2	Cells with 24 each 85314-2 cell contacts inserted	5-85000-5
	7	Spacers	85014-1
85386-1	2	Circuit rails (5 conductors) 6.8 inches long	85001-1
	13	Rib contacts (programmed "A")	1-85304-1
	13	Rib contacts (programmed "B")	1-85304-2
	13	Rib contacts (programmed "C")	1-85304-3
	13	Rib contacts (programmed "D")	1-85304-4
	13	Rib contacts (programmed "E")	1-85304-5
	5	Rib contacts (programmed "None")	1-85304-6
	5	Rib contacts (programmed "All")	1-85304-7
	3	Cells with 16 each 85007-3 cell contacts inserted	8-85000-4
	3	Cells with 24 each 85007-3 cell contacts inserted	8-85000-8
	7	Spacers	85017-1

* For dimensions and materials refer to AMP-MECA Interconnection System Handbook—AMP-MECA cell height .700

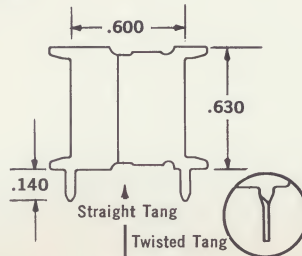
AMP INCORPORATED
HARRISBURG, PA.

TABULAR DATA FOR AMP-MECA CELL HEIGHT

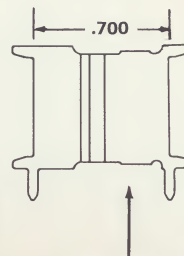


AMP-MECA CELL
(Glass Filled Diallyl Phthalate)

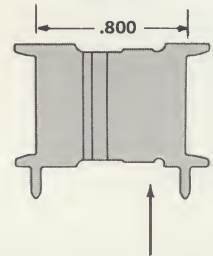
Spacer Catalog Number
STRAIGHT TANG
TWISTED TANG



Spacer Catalog Number

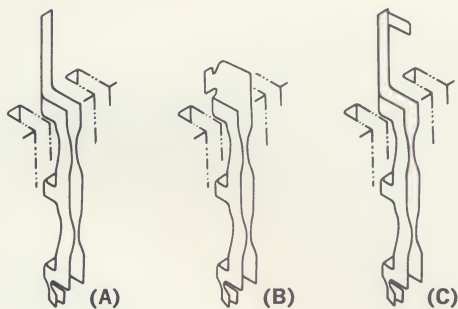


Spacer Catalog Number
85012-1
85308-3



AMP-MECA CELLS	NO. OF SLOTS	L	L ₁	CELL CATALOG NO.	W	W ₁	CELL CATALOG NO.	W	W ₁	CELL CATALOG NO.	W	W ₁	CELL CATALOG NO.
	4	.275	.170		.590	.325		.690	.425		.790	.525	
	6	.375	.270										
	8	.475	.370										
	10	.575	.470										
	12	.675	.570										3-85000
	14	.775	.670										
	16	.875	.770							2-85000-9			4-85000
	18	.975	.870										
	20	1.075	.970										4-85000
	22	1.175	1.070										
	24	1.275	1.170										4-85000
	32	1.675	1.570							8-85000-9			

CELL CONTACTS



(A) STANDARD CELL CONTACT		
MATERIAL BRASS	MATERIAL PHOS. BRONZE	PLATING FINISH
85007-3	85311-3	GOLD

LEFT-HAND CELL CONTACT		
MATERIAL BRASS	MATERIAL PHOS. BRONZE	PLATING FINISH
85314-2	85316-2	GOLD
(C) RIGHT-HAND CELL CONTACT		
85313-2	85315-2	GOLD

(B) WELD-TYPE CONTACT		
MATERIAL BRASS	MATERIAL PHOS. BRONZE	PLATING FINISH
85312-3	85178-3	GOLD

CIRCUIT RA
(Board Thickness

BOARD MATERIAL
General Purpose Phenolic (XXXP)
Paper Epoxy (EP-22)
Glass Epoxy (G-10)

(*Other Board Thicknesses Available)

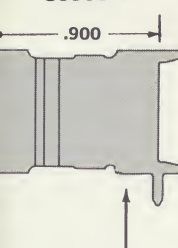
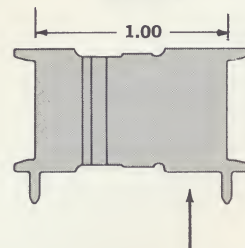
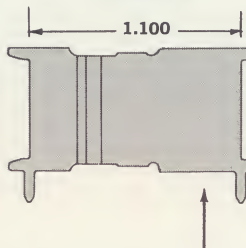
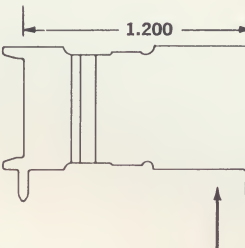
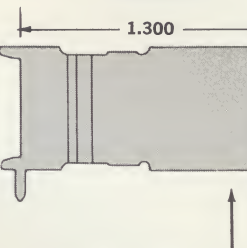
AVAILABLE FROM PRODUCTION TOOLING

WHERE PARTS ARE NOT INDICATED BY CATALOG NUMBER,
CONTACT AMP FOR AVAILABILITY.

OTHER CELL SIZES & GRID SYSTEMS AVAILABLE.

Brass—Go	
Twisted Tang Part No.	Straight Part No.
1-85304-1	85304
1-85304-2	85304
1-85304-3	85304
1-85304-4	85304
1-85304-5	85304
1-85304-6	85304
1-85304-7	85304

.700—including all hardware for this cell height.

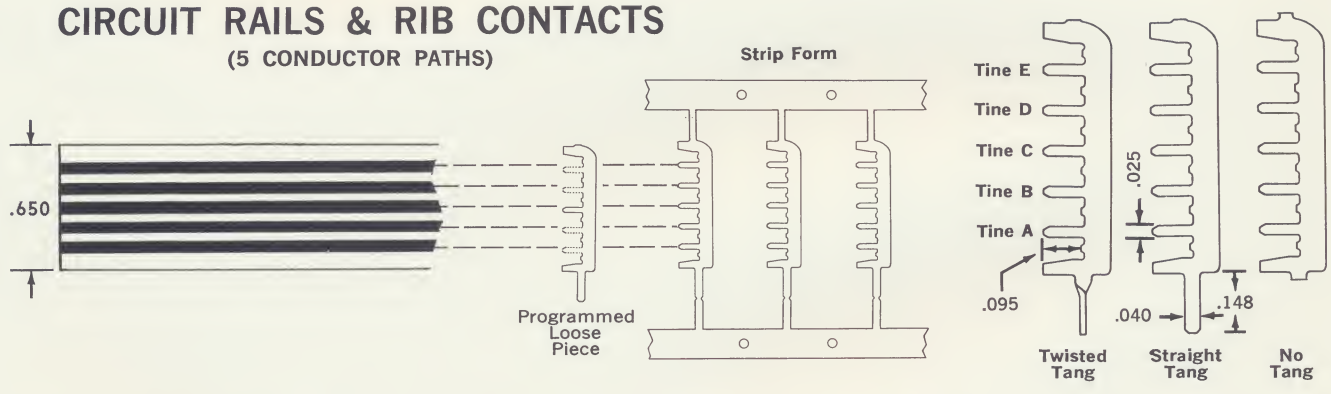
Spacer Catalog Number			Spacer Catalog Number			Spacer Catalog Number			Spacer Catalog Number			Spacer Catalog Number		
85013-1			85014-1			85015-1			85017-1			85017-1		
85308-4			85308-5			85308-6			85308-8			85308-8		
														
G NO.	W	W ₁	CELL CATALOG NO.	W	W ₁	CELL CATALOG NO.	W	W ₁	CELL CATALOG NO.	W	W ₁	CELL CATALOG NO.	W	W ₁
	.890	.625		.990	.725		1.090	.825		1.190	.925		1.290	1.025
8			4-85000-9			6-85000-0			8-85000-2					
0			5-85000-1			6-85000-2								
2			5-85000-3			6-85000-4								
4			5-85000-5			6-85000-6								
These AMP-MECA cells are for use with the above spacer			These AMP-MECA cells are for use with the above spacer			These AMP-MECA cells are for use with the above spacer			These AMP-MECA cells are for use with the above spacer			These AMP-MECA cells are for use with the above spacer		

CIRCUIT RAILS & RIB CONTACTS (5 CONDUCTOR PATHS)

ILS
.032*)

CATALOG NO.
85003
85002
85001

(on Request)



RIB CONTACTS WITH TANG AT BOTTOM				
Gold Plated		Phos. Bronze—Gold Plated		
Tang	Circuit Rail Tine Left On	Twisted Tang Part No.	Straight Tang Part No.	Circuit Rail Tine Left On
1	ONLY A	1-85306-1	85306-1	ONLY A
2	ONLY B	1-85306-2	85306-2	ONLY B
3	ONLY C	1-85306-3	85306-3	ONLY C
4	ONLY D	1-85306-4	85306-4	ONLY D
5	ONLY E	1-85306-5	85306-5	ONLY E
6	NONE	1-85306-6	85306-6	NONE
7	ALL ON	1-85210-1	85210-1	ALL ON

RIB CONTACTS WITH NO TANG AT BOTTOM			
Brass—Gold Plated		Phos. Bronze—Gold Plated	
Part No.	Tine Left On	Part No.	Tine Left On
85305-1	ONLY A	85307-1	ONLY A
85305-2	ONLY B	85307-2	ONLY B
85305-3	ONLY C	85307-3	ONLY C
85305-4	ONLY D	85037-4	ONLY D
85305-5	ONLY E	85307-5	ONLY E
85305-6	NONE	85307-6	NONE
85305-7	ALL ON	85307-7	ALL ON

AMP-MECA[★]

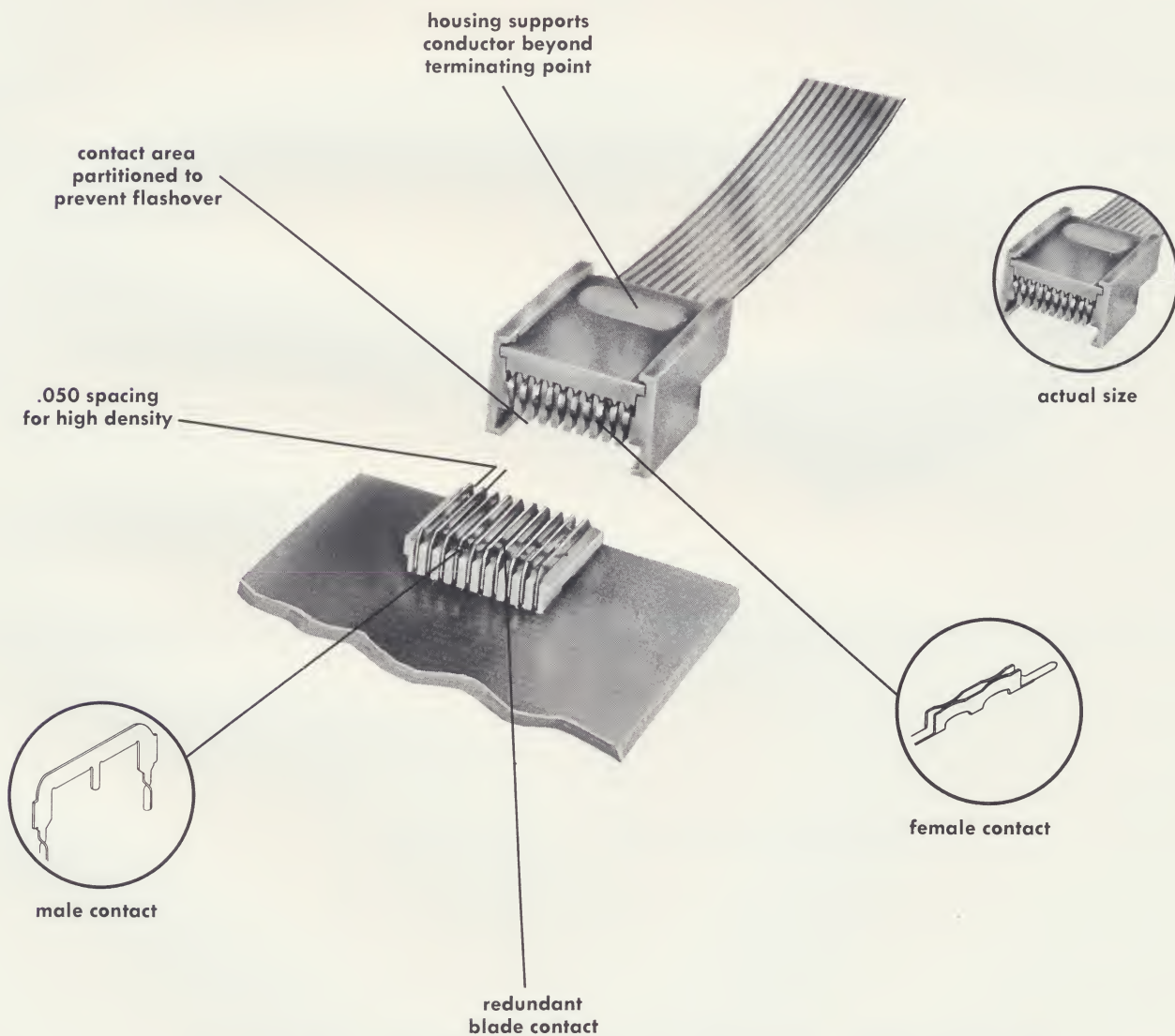
PRINTED CIRCUIT EDGE CONNECTORS, FOR FLAT CONDUCTORS

PLACE IN
ADDITIONAL DATA
SECTION OF
YOUR AMP-MECA
INTERCONNECTION
SYSTEM
HANDBOOK

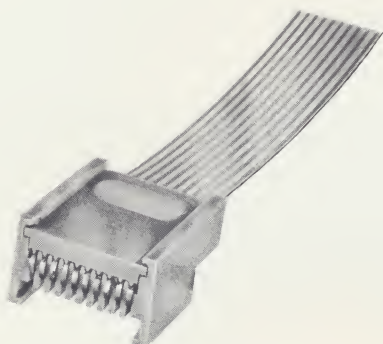
Issued 6-63

10 POSITION—.050 GRID SPACING

In applications where density requirements are aided by the use of flat-cable type conductors, this connector offers the advantages of maximum density in a rigidized form. The male half of the connector is staked down on the board. The female half, polarized for error-free, easy insertion, carries the specially designed AMP-MECA contact which provides four distinct areas of contact for maximum reliability and trouble-free performance. Gold plated contacts are welded (or soldered) to conductor cable.



SPECIFICATIONS



FEMALE CONTACT HOUSING ASSEMBLY

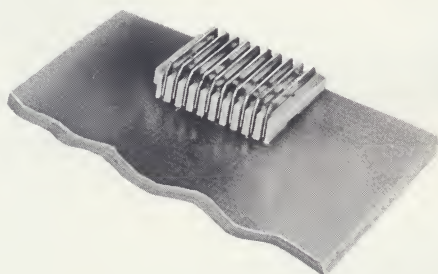
85240-1

Housing Material: Polycarbonate

Contact Material: Gold Plated Phosphor Bronze

(Includes affixing flat conductor to housing assembly.

Conductor to be supplied by customer)



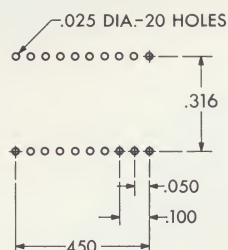
MALE CONTACT HOUSING ASSEMBLY

85238 (Contacts Included)

Housing Material: Polycarbonate

Contact Material: Gold Plated Phosphor Bronze

MOUNTING DIMENSIONS



AMP INCORPORATED

HARRISBURG, PA.

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AMP-MECA[★]

PRINTED CIRCUIT CARD TO CARD CONNECTORS

PLACE IN
ADDITIONAL DATA
SECTION OF
YOUR AMP-MECA
INTERCONNECTION
SYSTEM
HANDBOOK

Issued 6-63

40 POSITION—.075 STAGGERED GRID SPACING

Staggered placement of contacts in this card to card connector aids in achieving maximum density. AMP-MECA design contacts offer redundancy of contact, assure extreme reliability through four distinct points of contact. Female half of the connector is staked down on the board. This helps prevent board warpage and creates a rigid assembly with maximum resistance to vibration and shock. Contacts are gold plated to AMP Standard.

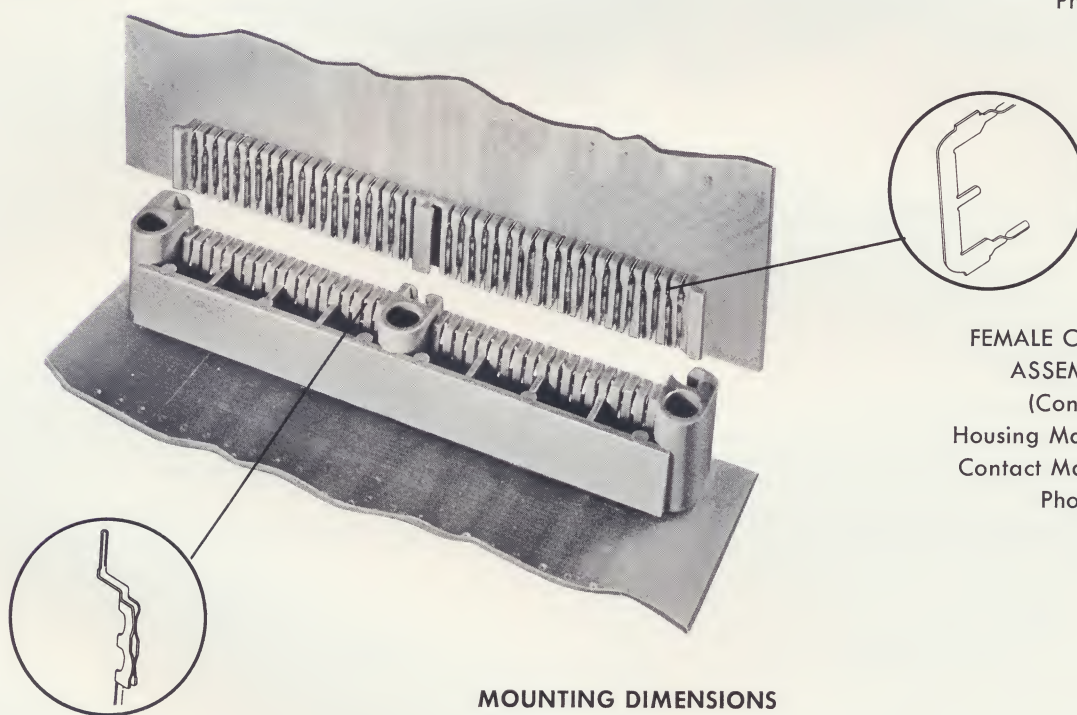
MALE CONTACT HOUSING ASSEMBLY #85243-1

(Contacts Included)

Housing Material: Polycarbonate

Contact Material: Gold Plated

Phosphor Bronze



FEMALE CONTACT HOUSING ASSEMBLY #85244-2

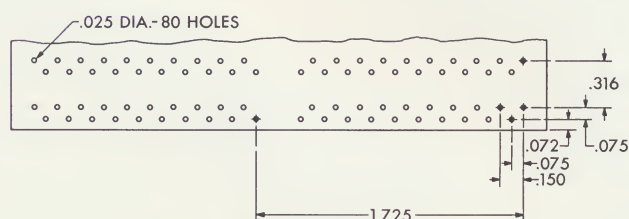
(Contacts Included)

Housing Material: Polycarbonate

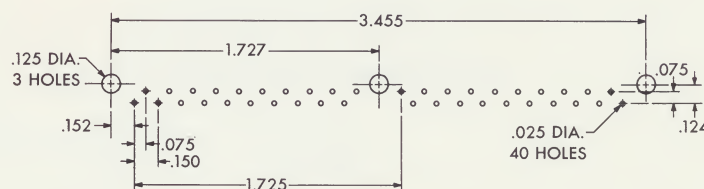
Contact Material: Gold Plated

Phosphor Bronze

MOUNTING DIMENSIONS

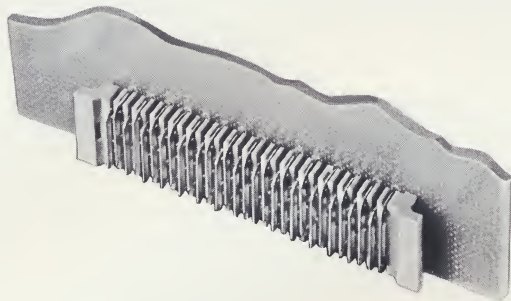


MALE CONTACT HOUSING

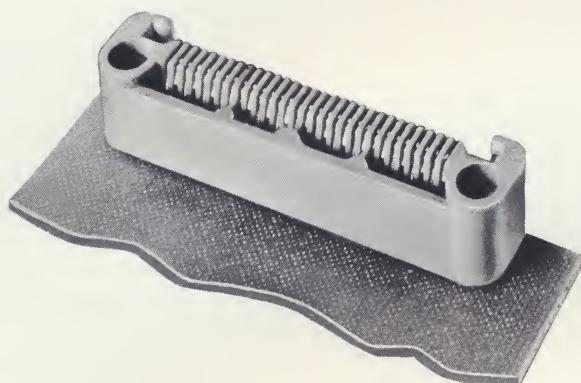


FEMALE CONTACT HOUSING

30 POSITION—.050 STAGGERED GRID SPACING



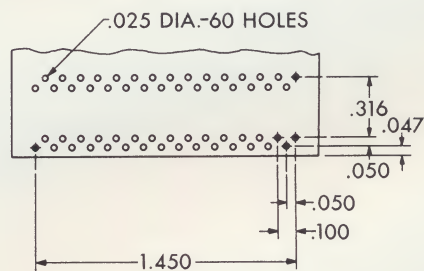
MALE CONTACT HOUSING ASSEMBLY
85330-1 (Contacts Included)
Housing Material: Diallyl Phthalate
Contact Material: Gold Plated
Phosphor Bronze



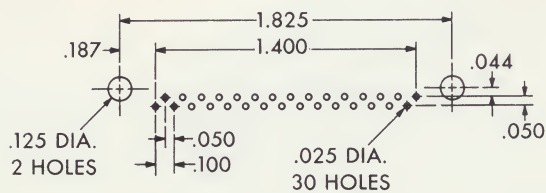
FEMALE CONTACT HOUSING ASSEMBLY
85331-1 (Contacts Included)
Housing Material: Diallyl Phthalate
Contact Material: Gold Plated
Phosphor Bronze

MOUNTING DIMENSIONS

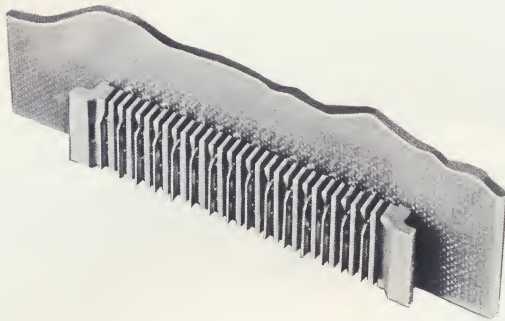
MALE CONTACT HOUSING



FEMALE CONTACT HOUSING



15 POSITION—.100 GRID SPACING



MALE CONTACT HOUSING ASSEMBLY
85328-1 (Contacts Included)

Housing Material: Diallyl Phthalate
Contact Material: Gold Plated
Phosphor Bronze

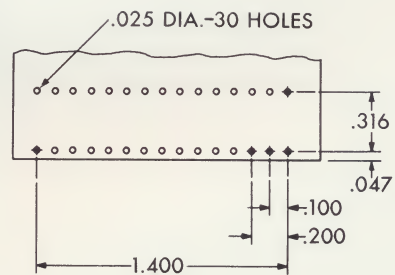


FEMALE CONTACT HOUSING ASSEMBLY
85329-2 (Contacts Included)

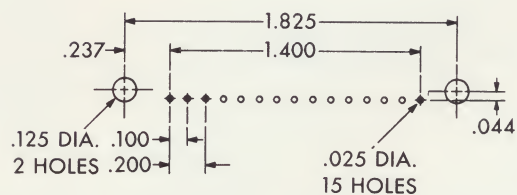
Housing Material: Diallyl Phthalate
Contact Material: Gold Plated
Phosphor Bronze

MOUNTING DIMENSIONS

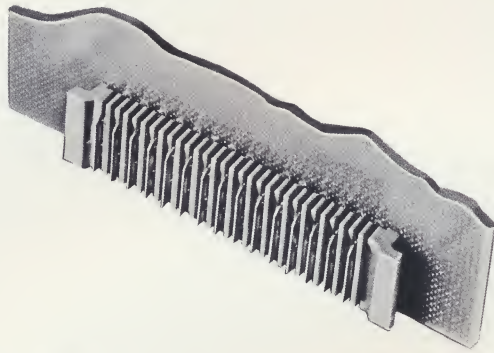
MALE CONTACT HOUSING



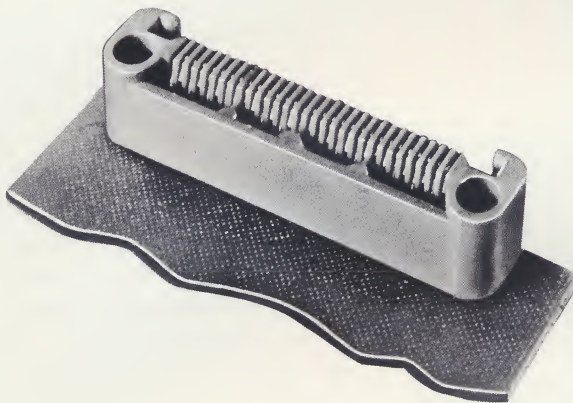
FEMALE CONTACT HOUSING



7 POSITION—.200 GRID SPACING



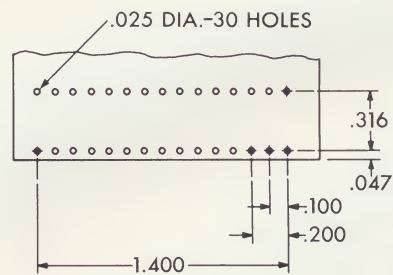
MALE CONTACT HOUSING ASSEMBLY
85328-1 (Contacts Included)
Housing Material: Diallyl Phthalate
Contact Material: Gold Plated
Phosphor Bronze



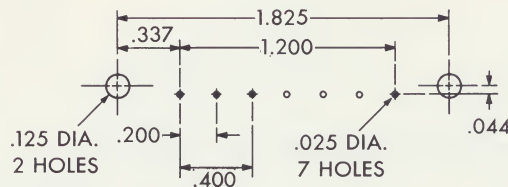
FEMALE CONTACT HOUSING ASSEMBLY
85466-1 (Contacts Included)
Housing Material: Diallyl Phthalate
Contact Material: Gold Plated
Phosphor Bronze

MOUNTING DIMENSIONS

MALE CONTACT HOUSING



FEMALE CONTACT HOUSING



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AMP-MECA[★]

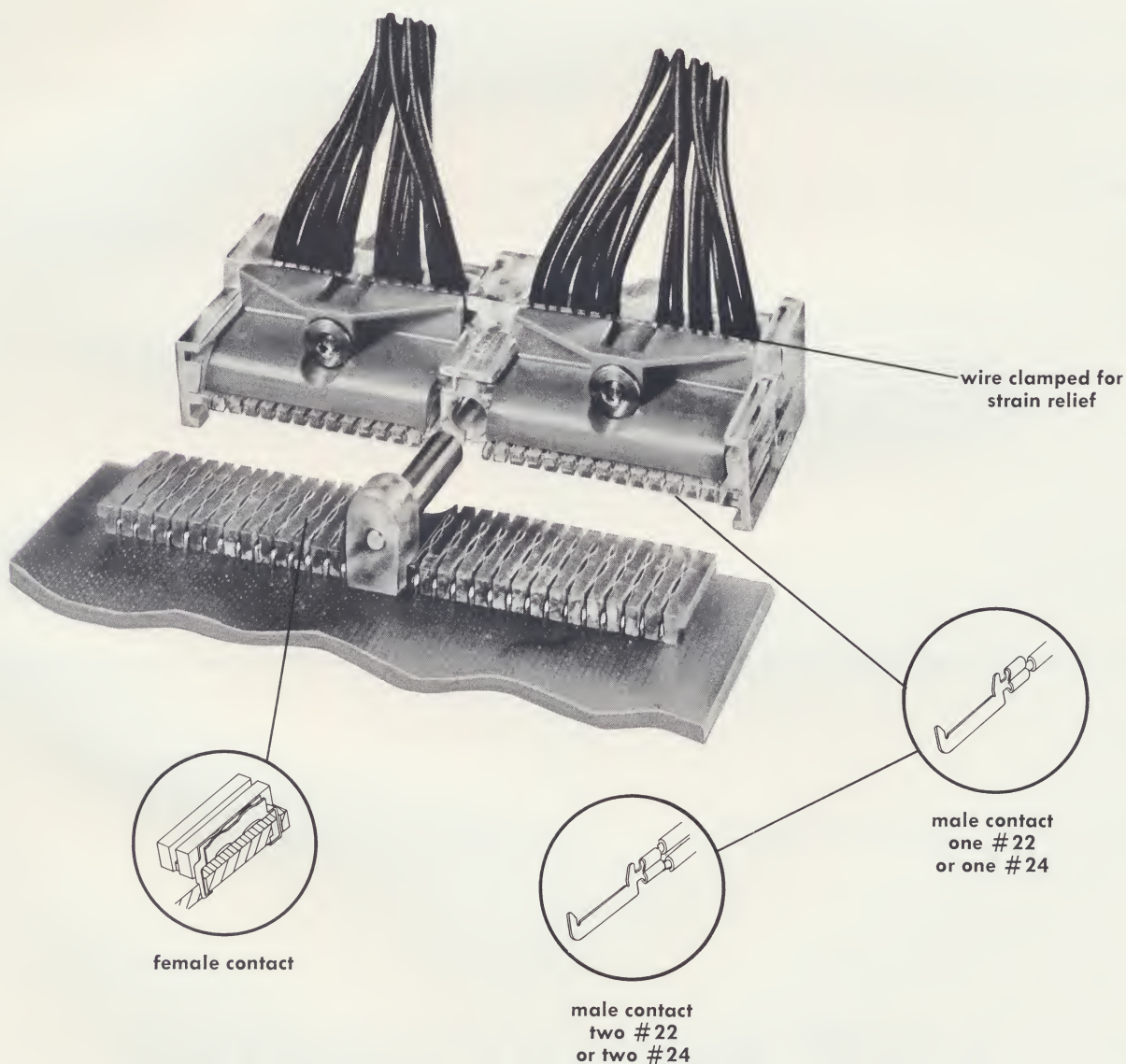
PRINTED CIRCUIT, WIRE EDGE CONNECTOR

PLACE IN
ADDITIONAL DATA
SECTION OF
YOUR AMP-MECA
INTERCONNECTION
SYSTEM
HANDBOOK

Issued 6-63

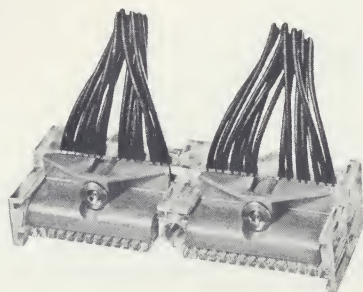
28 POSITION—.075 GRID SPACING

Staked down female half of this connector is equipped with AMP-MECA design contacts. The keying plug is an integral part of the assembly. Contacts are gold plated to AMP Standard and offer four points of contact for assured reliability. The spring design of the contact creates low insertion/extraction forces, yet it offers extreme resistance to vibration. Leads are crimped to contacts and held in position by overall strain relief which is an integral part of the connector design.



SPECIFICATIONS

(AVAILABLE IN STRIP OR LOOSE PIECE FORM)



**MALE CONTACT HOUSING ASSEMBLY
#85197**

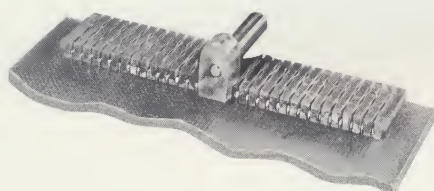
Material: Glass-filled Polycarbonate
(Contacts not included, order separately)



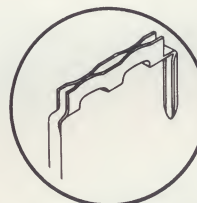
**MALE CONTACTS
MATERIAL: PHOSPHOR BRONZE**

WIRE RANGE	PART NO.	FINISH	TOOLS
TWO #22	85193-1	PLAIN	HAND TOOL #90030
OR	85193-2	TIN PLATED	
TWO #24	85193-3	GOLD PLATED	
ONE #22	85194-1	PLAIN	
OR	85194-2	TIN PLATED	
ONE #24	85194-3	GOLD PLATED	

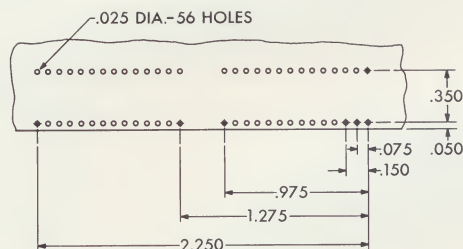
**FEMALE CONTACT HOUSING ASSEMBLY
#85195-2
(Contacts Included)**



Housing Material: Glass-filled Polycarbonate
Contact Material: Gold Plated
Phosphor Bronze

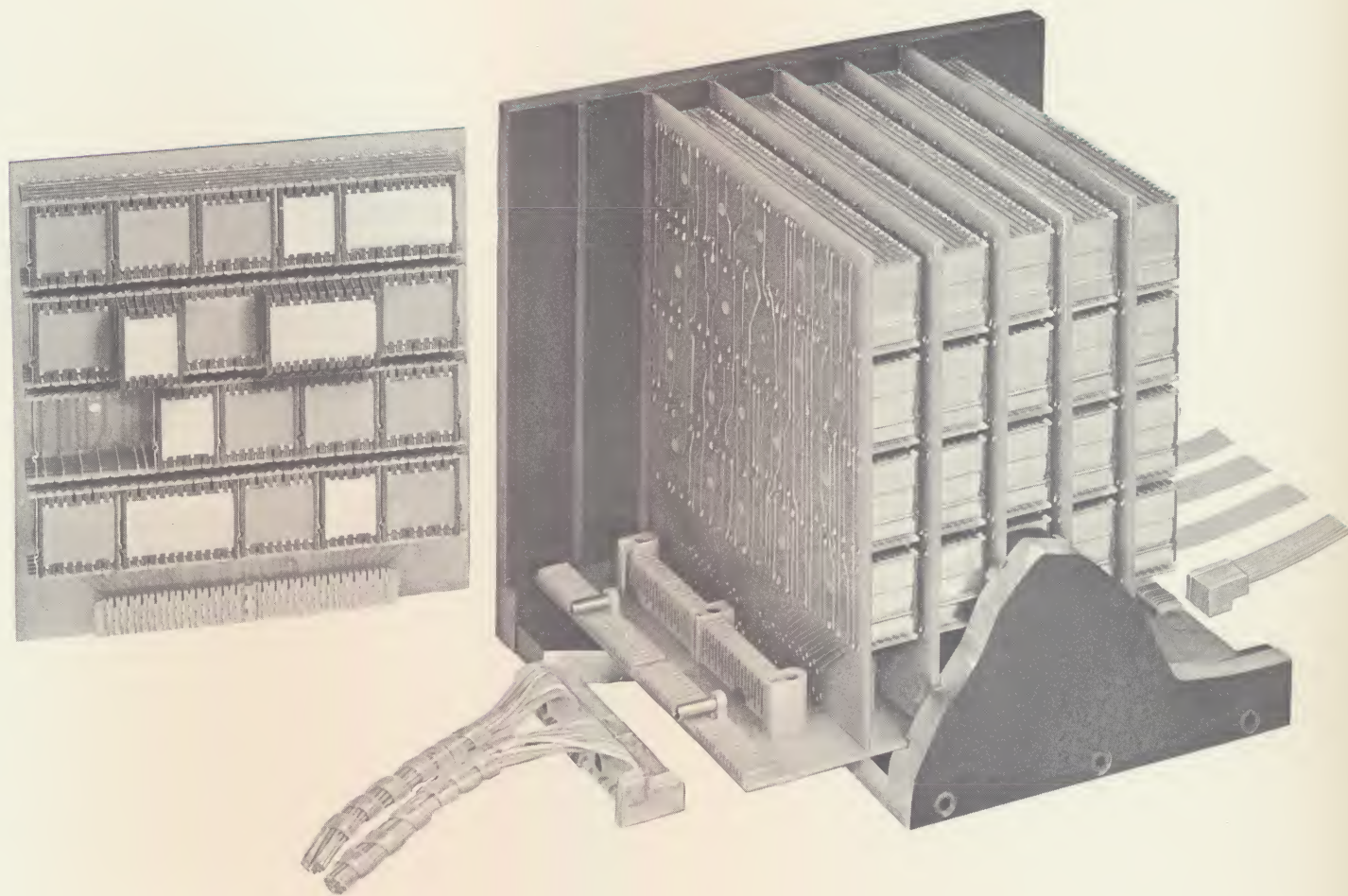


MOUNTING DIMENSIONS



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